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U.S. Navy Dept.

Title:
Manual for accounting officers

Place:
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174 p. tables. 21 cm.

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MANUAL

FOR

ACCOUNTING OFFICERS

▽

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FOR

ACCOUNTING OFFICERS

1917

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NAVY DEPARTMENT,
BUREAU OF SUPPLIES AND ACCOUNTS,
Washington, July 26, 1916.

1. This edition of the Manual for Accounting Officers supersedes the edition of August 12, 1915. The following bulletins, which, where not of a transient nature, have been incorporated in the text in original or modified form, are hereby revoked: Nos. 2, 3, 4, 5, 6, 8, 9, 11, 12, 14, 15, 19, 20, 22, 23, 24, 26, 27, 28. It is directed that the old edition of the Manual and the bulletins enumerated be removed from all binders.

2. All circular letters relating to the industrial accounting system which were issued from July 1, 1915 to date, other than those of a transient nature, are incorporated herein in original or modified form.

3. All correspondence on the subject matter of this Manual shall be addressed to the Bureau of Supplies and Accounts. References shall not be made to bulletins and circular letters which have been canceled; refer to the appropriate paragraph herein.

4. A booklet edition of Parts I and II of the Manual, entitled "Navy Classification of Accounts," will be distributed to industrial yards to supersede the Manual for Supervisors, all copies of which shall be withdrawn from use.

SAMUEL MCGOWAN,
Paymaster General of the Navy.

Approved:
JOSEPHUS DANIELS,
Secretary of the Navy.

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MANUAL FOR ACCOUNTING OFFICERS.

NAVY CLASSIFICATION OF ACCOUNTS.

GENERAL DESCRIPTION.

1. Naval accounting embraces:
   (*a*) Statistical accounting, under two heads—
      1. Cost accounting, under administrative classifications (titles and accounts) and units of output; i. e., by purposes and objects.
      2. Appropriation accounting, under legislative authorizations, i. e., by sources.
   (*b*) Fidelity accounting, under two heads—
      3. Property accountability.
      4. Money accountability.

2. The general system of (4) money accountability is controlled by the accounting officials of the Treasury Department, and returns are made to and audited by the Auditor for the Navy Department, duplicates or summaries being rendered to the Navy Department for various accounting purposes. The systems of (1) cost accounting, (2) appropriation accounting, and (3) property accountability are prescribed by and reports and returns are rendered to the Navy Department, the three branches being represented in the departmental organization by the three sections of the Accounting Division of the Bureau of Supplies and Accounts, viz, (1) cost section, (2) appropriation section, (3) audit section.

3. Since the Treasury Department is empowered to pass on the legality of charges made to appropriations and is required to maintain records showing the Treasury balance under each appropriation, the money returns rendered to the Treasury by disbursing officers are required to carry information showing appropriations chargeable. The charges due to expenditures of material are reported by the Navy Department to the Treasury Department in the form prescribed by the latter. In respect to legality of appropriation charges, the appropriation accounts rendered to the Treasury are of the nature of fidelity accounts, by virtue of the power vested in the Treasury Department to disallow illegal expenditures.

4. The Navy classification of accounts embraces the first of these four branches, i. e., cost accounting, and this publication is an outline guide to the preparation of primary cost accounting documents. The systems of records and reports afloat and ashore based on these primary papers are prescribed by the Naval Instructions, the Manual for Supply Officers Afloat, the Industrial Accounting Instructions, and Accounting Bulletins.

5. To avoid duplication of work, it is necessary that primary accounting papers carry the notations necessary for classifying transactions under appropriation headings, as well as under cost headings. The appropriations or funds chargeable for expenditures of money and material are prescribed in the naval appropriation acts, published in the annual Digest of Appropriations, issued by the Treasury Department. Charges to the appropriations and funds listed therein are final. The general account of advances (act of June 19, 1878), not listed in the Digest, receives and carries in suspense in the naval supply account (deficiency act of June 25, 1910, naval acts of Mar. 4, 1911, and Mar. 3, 1914) charges for purchase and manufacture of stores for stock, the final appropriation charge for which can not be determined until issue. Charges made at yards on account of work for private parties under special deposit, work for other departments of the Government, and charges to proceeds of auction sales are treated by the Treasury Department as charges to general account of advances until adjustment has been made. Certain maintenance charges at industrial yards are reported on primary papers without appropriation designation, but all such expenditures are prorated and reported monthly as a charge to specific appropriations.

6. The reporting of appropriation charges to the Bureau of Supplies and Accounts is necessary in order that information as to the balances under the appropriations may be available to the responsible bureaus and in order that the transactions under each appropriation may be communicated annually to Congress, as prescribed by law. The numbers by which the various appropriations shall be designated on reports of expenditure, public bills, and other documents forwarded to the Bureau of Supplies and Accounts are listed annually in Accounting Bulletin No. 1. At certain industrial yards the appropriations on job orders, time cards, and stubs are denoted for local use by a separate system of numbers.

7. The reporting of charges to the Bureau of Supplies and Accounts under purpose headings, i. e., by titles and ships or accounts, is necessary in order that the cost of the various activities of the Naval Establishment may be available for administrative purposes and also in order that cost analyses may be furnished under the various appropriations when called for.

8. For local use on primary papers, i. e., job orders, time cards, stub requisitions, etc., titles are designated by their letters; the numbers by which they shall be designated on all documents forwarded to the Bureau of Supplies and Accounts are indicated below. The numbers by which the various accounts are designated for all purposes are also contained herein. The numbers by which the various ships and stations shall be designated on accounting documents for the Bureau of Supplies and Accounts are contained in Accounting Bulletin No. 1.

9. The purposes of the principal accounting documents are indicated by the tables at pages 7–8, and the flow of money and material to the titles or main cost heads is indicated by the chart at page 9. Since property charged to Titles E and R is treated as a final expenditure, not being held in suspense as in the case of Title B property, Title W is omitted from the chart to avoid indicating a double cost charge.

PURPOSE OF ACCOUNTING DOCUMENTS.

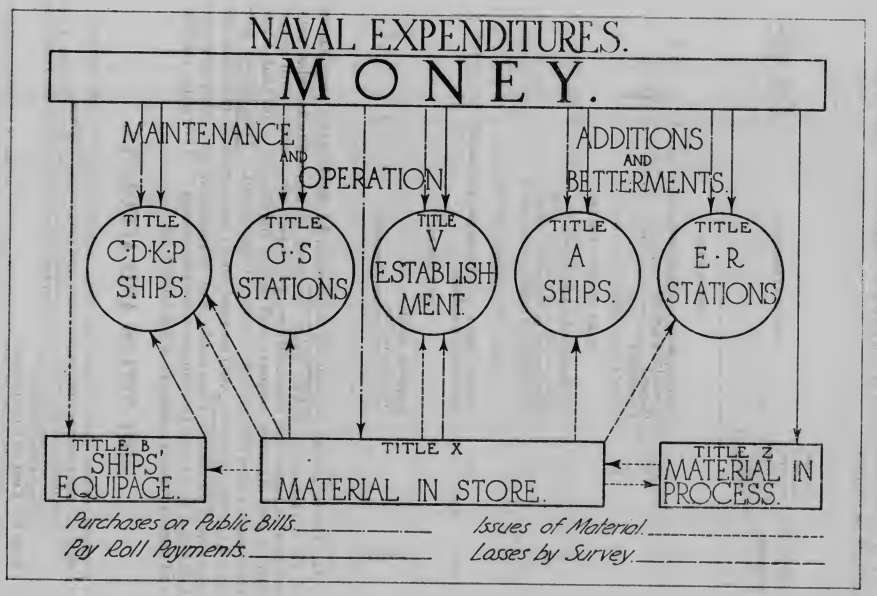
I.—*Expenditures of money.*

For—	Cost accounts.		Appropriation accounts.			Fidelity accounts.	
	Primary document.	Reporting document.	Primary document.	Reporting document.	Subsidiary voucher.	Main voucher.
		To S. and A.		*To S. and A.*		*To Auditor.*
Personal services, officers and enlisted men.	.....	Pay-roll summary (Form 61).	.....	Pay-roll summary (Form 61).	Cash receipt or check.	Account current (Forms 21, 119) supported by pay roll (Form 1).
Personal services, civil employees.	Time ticket	Report of expenditures (Forms 150, 280, 280b); industrial expense statements (Forms 298, etc., 299, etc.); miscellaneous industrial cost reports.	Time ticket.	Abstract of accrued labor (Form 119a) based on labor roll summaries (Form 194).	....do.....	Account current (Form 119) supported by pay roll (Forms 81, 84, 84b).
New material	Public bill (Forms 51, 85).	Public bill (Forms 51a, 83a).	Public bill	Schedule of disbursements (Form 21a); abstract of appropriations chargeable (Form 119a).	....do.....	Account current (Forms 21, 119) supported by public bill (Forms 81, 85).
Contract services	....do.....	....do.....	....do.....	....do.....	....do.....	Do.

PURPOSE OF ACCOUNTING DOCUMENTS.

II.—*Expenditures of material.*

For—	Cost accounts.		Appropriation accounts.		Fidelity accounts.	
	Primary document.	Reporting document.	Primary document.	Reporting document.	Subsidiary voucher.	Main voucher.
		To S. and A.		*To S. and A. From S. and A. to Auditor.*		*To S. and A.*
Issues for use: Naval supply account stores.	Invoice (Forms 71, 127, 128).	Abstract of expenditure vouchers (Form 147).	Invoice....	Forms 69, 70.....	Invoice.....	Balance sheet (Form 157b).
Do.....	Stub (Form 129a).	Report of expenditures (Forms 20, 150, 280, 280b); industrial expense statements (Forms 298, etc., 299, etc.); miscellaneous industrial cost reports; class balance sheet (Form 157a).	Stub.....	Transfer statement (Forms 69, 70); abstract of material summarized (Form 119b); summary of stub requisitions (Form 178).	Stub.....	Do.
Issues for use: Other stores....	Stub.....	.....do.....	...do.....	Transfer statement (Form 222) (if appropriation charge is involved).	Invoice.....	Balance sheet (Forms 157c, 58, 36, 37, 140, 141, 142).
Do.....	Invoice.....	Form 147.....	.....	.....do.....	.....do.....	Do.
Transfer of stores...	Stores invoice (Forms 71, 127, 128).	.....do.....	Invoice....	Forms 69, 70 (if appropriation charge is involved).	Invoice and summary of store invoices (Form 176).	Forms 157b, 157c.
Transfer of plant...	Plant invoice (Form 71).	Invoice.....	.....	.....	Invoice.....	
Loss of stores.....	Stores survey (Form 153, etc.).	Form 147.....	Invoice....	Forms 69, 70.....	.....do.....	Do.
Loss of plant.....	Plant survey (Form 153, etc.).	Invoice.....	.....	.....	.....do.....	



10. A brief description of the titles (see also art. 4804, Naval Instructions) is as follows:

Acquisition of new property.	Maintenance of property and operating expenses.	Kind of expenditure.	Final titles.	Suspense titles.
		SHIP TITLES.		
A	.....	Hull, machinery, and permanent fittings	A	
	C	Operating expenses	C	
	D	Repairs	D	
	K	Alterations	K	
	P	Repairs to equipage	P	
		SHORE STATION TITLES.		
E	.....	Additions to industrial yards	E	
R	.....	Additions to nonindustrial yards	R	
	G	Maintenance of industrial yards	G	
	S	Maintenance of nonindustrial yards	S	
		NAVAL ESTABLISHMENT TITLE.		
	V	Miscellaneous expenditures not assignable to a ship or station.	V	
		STORES TITLES.		
				B
B	.....	Equipage afloat	.....	X
X	.....	Supplies in store	.....	Z
Z	.....	Stores manufacturing account	.....	

11. The following account numbers shall be used in the preparation of all requisitions, public bills, invoices, balance sheets, abstracts, summaries, reports of expenditures, job orders, time cards, stub requisitions, and all other property and money documents other than those rendered exclusively to the Treasury Department. Title letters, preceded by title numbers, will be used on all such accounting documents other than job orders, time cards, stub requisitions, and other forms for local use, on which title numbers are unnecessary. (For ship, station, and appropriation numbers, see Bulletin No. 1.)

SHIP TITLES AND ACCOUNTS.

(Charges incurred afloat or ashore for vessels, including submarines and aircraft.)

1. Title A.—First cost of hull, machinery, and permanent fittings.
Use the number of the vessel as the account number; accounts for individual aircraft are not required, charge to account 997, Aeroplanes, account 998, Dirigibles, or account 999, Balloons.

3. Title C.—Cost of commission.
Use the number of the vessel as the account number; accounts for individual aircraft are not required, charge to account 997, Aeroplanes, account 998, Dirigibles, or account 999, Balloons.

4. Title D.—Repairs.
Use the number of the vessel as the account number; accounts for individual aircraft are not required, charge to account 997, Aeroplanes, account 998, Dirigibles, or account 999, Balloons. Subaccounts under appropriation "Engineering" as follows:
1 Machinery.
2 Electrical.
3 Radio.

5. Title K.—Alterations.
Use the number of the vessel as the account number; accounts for individual aircraft are not required, charge to account 997, Aeroplanes, account 998, Dirigibles, or account 999, Balloons. Subaccounts under appropriation "Engineering" as follows:
1 Machinery.
2 Electrical.
3 Radio.

6. Title P.—Repairs to ships' equipage. Use the number of the vessel as the account number; accounts for individual aircraft are not required, charge to account 997, Aeroplanes, account 998, Dirigibles, or account 999, Balloons.

INDUSTRIAL YARD TITLES AND ACCOUNTS.

(Portsmouth, Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Mare Island, Puget Sound, Cavite, and Olongapo. On reports of expenditures charges under the various accounts will be assembled by the accounting officer as provided by accounting instructions.)

7. Title E.—Additions to plant.
Physical classes or subaccounts (add subaccount number to account number):
2 Land and appurtenances.
3 Buildings and structures.
4 Miscellaneous equipment (for original appraisal purposes only; charge all additions and replacements to Title G).
5 Plant appliances.
6 Machinery and machine tools.
7 Portable power tools (for original appraisal purposes only; charge all additions and replacements to Title G).
8 Loose and hand tools (for original appraisal purposes only; charge all additions and replacements to Title G).

Purpose groups or accounts:
General plant activities—
000 Grounds and Miscellaneous—
001 Grounds and water front.
002 Communications.
003 Fire protection.
010 Supply—
011 Fleet fuel supply.
012 Stores supply.
013 Testing and inspecting.
014 Purchase.
015 Provisions and clothing depot (New York).
020 Transportation—
021 Locomotive.
022 Crane.
023 Motor truck.
024 Team.
025 Hand.
026 Water.
030 Power—
031 Heat.
032 Steam.
033 Hydraulic.
034 Air.
035 Electric.
036 Salt water (Mare Island).

7. **Title E.—Additions to plant**—Continued.
Purpose groups or accounts—Continued.
General plant activities—Continued.
040 Administration—
041 Clerical.
042 Drafting.
043 Estimating and planning.
044 Accounting.
045 Janitors and watchmen.
046 Dispensary.
047 Disbursing.
048 Officers.
049 General supervisors.
050 Building ways.
060 Central tool shop.
070 Military activities—
072 Schools.
073 Receiving ship activities.
074 Radio stations (separately by name and number). Labor and material only. Vouchers will be charged to Title R.
075 Marine barracks (items chargeable to naval appropriations only).
076 Commissary stores.
077 Prisons.
079 Miscellaneous military activities.
Shops—
x10 Structural—
x11 Plate and angle shop.
x12 Chipping, calking, and riveting.
x15 Laying out and templating.
x16 Fitting and bolting, outside.
x17 Sheet-metal shop.
x18 Sheet metal, hand.
x19 Wirework.
x20 Smith and special hull work—
x21 Angle smith.
x22 Drop forge.
x23 Shipsmith.
x25 Gas manufacturing.
x26 Gas cutting and welding.
x27 Galvanizing.
x28 Electroplating.
x30 Machinists—
x31 Machine shop.
x37 Projectile factory.
x38 Machinists, hand.
x40 Boilermakers—
x41 Boilermakers, machine.
x44 Boilermakers, hand.
x50 Electrical and pipe—
x51 Electrical work, machine.
x52 Electrical work, hand.
x53 Coppersmith.
x56 Pipe fitting.
x58 Plumbers, machine.
x59 Plumbers, hand.
x60 Woodwork—
x61 Shipwrights, machine.
x62 Shipwrights, hand.
x63 Joiners, machine.
x64 Joiners, hand.
x65 Spar makers.
x67 Wood calkers.
x68 Boat shop.
x70 Laborers and miscellaneous hull work—
x71 Painting.
x72 Laborers and riggers, outside.
x74 Rigging loft.
x76 Sail loft.
x78 Upholsterers.

7. **Title E.—Additions to plant**—Continued.
Purpose groups or accounts—Continued.
Shops—Continued.
x80 Building trades—
x81 House carpenters.
x82 Masons.
x83 Wharfbuilders.
x84 Concrete laborers.
x90 Foundries and manufacturing—
x91 Foundry, iron.
x92 Foundry, brass.
x93 Foundry, steel or smelting.
x94 Pattern shop.
x95 Dry docks.
x96 Paint manufacturing.
x97 Rope walk or flag shop.
x98 Wire rope mill or tool manufacturing shop or coffee roaster.
x99 Chain shop or clothing factory.
Examples of account numbering—
0202 Extension of tracks (2), yard transportation system (020).
0483 New building (3) for officers' quarters (048).
x115 New crane (5) for plate and angle shop (11).
x316 New machine tool (6) for machine shop (31).

9. **Title G.—Maintenance of yard.**
Physical classes or subaccounts (add subaccount number to account number):
0 Miscellaneous labor and consumable supplies (class 0 is subdivided, as indicated in Appendix).
1 Losses and gratuities.
2 Land and appurtenances.
3 Buildings and structures.
4 Miscellaneous equipment.
5 Plant appliances.
6 Machinery and machine tools.
7 Portable power tools.
8 Loose and hand tools.
9 Supervision.
Purpose groups or accounts—
The same as under Title E.
Examples of account numbering—
0010 Wages of force (0) engaged in care of grounds (001).
0202 Repairs to tracks (2) yard transportation system (020).
0483 Repairs to building (3) used for officers' quarters (048).
0244 Acquisition of or repairs to harness (4) for team transportation (024).
x115 Repairs to crane (5) in plate and angle shop (x11).
x316 Repairs to machine tool (6) in machine shop (x31).
x127 Acquisition of or repairs to air hammers (7) for chippers (x12).
x808 Acquisition of or repairs to hand tools (8) for public works shop (x80).
x719 Pay of leading man (9) painter (x71).

NONINDUSTRIAL YARD TITLES AND ACCOUNTS.

(All yards and stations except Portsmouth, Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Mare Island, Puget Sound, Cavite, and Olongapo, and all magazines and hospitals, as enumerated in Art. 4804–8b, Naval Instructions.)

8. Title R.—Additions to plant.

Physical classes or accounts:

2 Land and appurtenances.
3 Buildings and structures.
4 Miscellaneous equipment (for original appraisal purposes only; charge all additions and replacements to Title S).
5 Plant appliances.
6 Machinery and machine tools.
7 Portable power tools (for original appraisal purposes only; charge all additions and replacements to Title S).
8 Loose and hand tools (for original appraisal purposes only; charge all additions and replacements to Title S).

Purpose groups or subaccounts (add subaccount number to account number):

01 Supply system.
02 Transportation (except by water).
03 Power plant.
04 Offices.
05 Quarters.
06 Shops.
07 Building ways.
08 Dry docks.
09 Floating property (make all charges to 509, i. e., to this subaccount under physical class 5).
10 Fuel plants.
11 Hospitals and dispensaries.
12 Schools.
13 Recei ing ship offices.
14 Radio stations (separately by name and number).
15 Marine barracks (items chargeable to naval appropriations only).
16 Commissary stores.
17 Prisons.
19 Miscellaneous.
31 Grounds (make all charges to 231, i. e., to this subaccount under physical class 2).
32 Water front (make all charges to 232, i. e., to this subaccount under physical class 2).
33 Communication systems (make all charges to 233, i. e., to this subaccount under physical class 2).
34 Fire protection (make all charges to 234, i. e., to this subaccount under physical class 2).

Examples of account numbering—

202 Extension of tracks (2) yard transportation system (02).
203 Extension of distributing system outside (2) of power plant (03).
306 Extension of distributing system inside (3) of shop (06).
306 Extension of building (3) for shop (06).
502 New crane (5) for yard transportation (02).
506 New crane (5) for shop (06).
606 New machine tool (6) for shop (06).

10. Title S.—Maintenance of station.

Physical classes or accounts:

0 Clerical force, attendance, miscellaneous labor, and consumable supplies.
1 Losses and gratuities.
2 Land and appurtenances.
3 Buildings and structures.
4 Miscellaneous equipment.
5 Plant appliances.
6 Machinery and machine tools.
7 Portable power tools.
8 Loose and hand tools.
9 Super ision.

10. Title S.—Maintenance of station—Continued.

Purpose groups or subaccounts (add subaccount number to account number):

The same as under Title R., with the addition of the following—

70 Leave (make all charges to 170, i. e., to this subaccount under physical class 1).
80 Holiday (make all charges to 180, i. e., to this subaccount under physical class 1).
90 Disability (make all charges to 190, i. e., to this subaccount under physical class 1).
00 Damage and waste (make all charges to 100, i. e., to this subaccount under physical class 1).

Examples of account numbering—

001 Clerical force (0) supply department (01).
003 Attendance (0) on power plant (03).
003 Coal (0) for power plant (03).
006 Waste (0) for shops (06).
231 Cleaning grounds.
305 Repairs to buildings (3) occupied as quarters (05).
406 Acquisition of or repairs to equipment (4) in shops (06).
502 Repairs to locomotives (5) yard transportation system (02).
509 Repairs to launches (5) floating property (09).
606 Repairs to machine (6) in shop (06).
706 Acquisition of or repairs to portable power tools (7) in shop (06).
806 Acquisition of or repairs to loose and hand tools (8) in shop (06).

NAVAL ESTABLISHMENT TITLE AND ACCOUNTS.

(Charges incurred afloat or ashore for the objects named.)

11. Title V.—General administration charges not assignable to any ship or station.

1 Miscellaneous: Include under this account all charges which can not be located to any other title or to any other account under this title.
2 Telegrams, cablegrams, and radiograms: Charge to this account all public bills for telegrams, cablegrams, and radiograms, except sundry service vouchers prepared on board ship which are chargeable to Title C.
3 Telephone rental and tolls: Telephones at industrial yards are chargeable to Title G, group 002. Telephones at nonindustrial yards are chargeable to Title S, account 233. Public bills on account of telephones at radio stations outside of yards are chargeable to Title S, accounts 314, 414, etc. Telephones at inspection offices are chargeable to Title V, account 29. Telephones at recruiting offices are chargeable to account 30. Telephones at all other places are chargeable to Title V, account 3.
4 Advertising: All bills for advertising for whatever purpose are chargeable to this account.
5 Care, transportation, and burial of the dead.
6 Transportation and travel allowance of enlisted men: This account includes all charges for transportation and travel allowance of enlisted men of the Navy and paid from the appropriation "Transportation, Navigation."
7 Mileage for officers.
8 Transportation and traveling expenses of officers (exclusive of mileage).
9 Transportation and traveling expenses of civilian employees.
10 Transportation and traveling expenses of female nurses.
11 Pay of officers traveling.
12 Pay and allowance of officers on duty at Navy Department (does not include items chargeable to accounts 13 and 23).
13 Pay and allowances of officers on special duty (does not include items chargeable to accounts 15, 16, 23, 29, 30).
14 Models, tests, and experiments.

11. Title V.—General administration charges not assignable to any ship or station—Continued.

15 Naval Militia: Charge to this account all expenditures from the appropriations "Arming and equipping Naval Militia" and "Arms, uniforms, equipment, etc., Naval Militia." In addition charge to this account items paid from naval appropriations which can not be located against a specific ship under Titles B, C, D, K, and P.
16 Naval Reserves (all charges).
17 Pay of retired officers.
18 Pay of enlisted men.
19 Pay of personnel unassigned.
20 Commissions and interest.
21 Exchange.
22 Transportation of funds.
23 Courts and boards (labor boards are chargeable to Titles G or S).
24 Clothing outfits.
25 Care and treatment of sick by civilians.
26 Special instruction.
27 Naval attachés (except pay and allowances charged to 13).
28 Subsistence and commuted rations of warrant officers and enlisted men not attached to a ship or station.
29 Inspection offices.
30 Recruiting offices.
31 Repairs and alterations to ordnance equipage (not attributable to a specific ship) and to ordnance supplies ashore.
32 Prisoners (including transportation of prisoners and guards).
33 Loss by missing survey or appraisal survey of ordnance stores ashore.
34 Loss by missing survey or appraisal survey of stores ashore (other than ordnance).
35 Repairs and alterations to equipage (other than ordnance) not attributable to a specific ship and to supplies ashore (other than ordnance).
36 Honorable discharge gratuities.
37 Small-arms firing-regulation prizes.
38 Gunnery-exercise prizes other than small arms.
39 Freight.

STORES TITLES AND ACCOUNTS.

2. Title B.—Ships' equipage afloat.
Use the number of the ship as the account number.

13. Title X.—Supplies in store afloat or ashore.
1 Naval supply account.
2 Ordnance account.
3 Clothing and small stores account.
4 Provisions account.
5 Survey account (on shore only).
6 Used material account (on shore only).
7 Condemned stores account (on shore only).

14. Title Z.—Manufacturing work in process ashore.
1 Naval supply account.
2 Ordnance account.
3 Clothing account.
4 Provisions account.

MISCELLANEOUS HEADINGS NUMBERED IN THE TITLE SERIES.

15. Indirect expense deducted.
17. Marine Corps.
18. Other Government departments.
19. Special deposits.
20. Sales for cash.
21. Proceeds of sales.

DETAILED CLASSIFICATION OF INDUSTRIAL ACCOUNTS.

GENERAL DESCRIPTION.

1. The following yards are classed as industrial: Portsmouth, Boston, Philadelphia, New York, Washington, Norfolk, Charleston, Mare Island, Puget Sound, Cavite, Olongapo.

2. The yards are divided for accounting purposes into nonproducing (general service) departments and sections and into producing departments and sections (shops). These departments or purpose groups and the sections thereof are listed at pages 22–23.

3. All expenditures not chargeable to productive job orders—or, in other words, all expenditures for plant maintenance, Title G—fall into physical classes as enumerated at pages 18–21.

4. A complete list of the proper general expense accounts and shop expense accounts is published herein (pp. 25–94 under the respective, general and producing activities, and these accounts shall be used for designating on job orders, time cards, and stubs all expenditures for plant maintenance—Title G. The account numbers are constructed by adding to the number of the producing or nonproducing group and section for which the charge is incurred the number of the physical class into which the expenditure falls.

5. The same accounts shall also be used for charges to Title E—Plant additions, in the case of property under class 2—Land and appurtenances, class 3—Buildings and structures, class 5—Plant appliances, and class 6—Machinery and machine tools. All such charges should specify Title E and the proper appropriation, job and account, thus; 14–E–1–0103 (Navy yard appropriation—Title E, Job No. 1, account new building for Supply Department).

6. The title need not be specified on time cards and stubs for general expense and shop expense, as all charges to these account numbers, where Title E is not stated, are understood to be Title G.

7. Title G charges include all repairs to and maintenance of property under all classes, all replacements and additions to the plant under class 4—Miscellaneous equipment, class 7—Portable power tools, and class 8—Loose and hand tools, and all plant operating expenses under class 0—Miscellaneous labor and consumable supplies, class 1—Losses and gratuities, and class 9—Supervision.

8. Where a specific appropriation should be charged for a Title G expenditure, its number should be stated, thus; 10–0202—Appropriation Maintenance, Y. & D.—Account repairs to tracks.

9. Where the appropriation is indeterminate, i. e, where no specific appropriation is directly chargeable, the account number only should be given, thus: x319 (Account supervision of machine shop).

10. Where a specific auxiliary job order has been issued for work chargeable to Title G, the number of the job should follow the account number.

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PHYSICAL CLASSES (SUBACCOUNTS).

11. The following are the physical classes of property and expenditures. (Complete list of items under each class, see p. 95; alphabetical index to same, see p. 107.)

Class 0 Miscellaneous labor and consumable supplies.
1 Losses and gratuities.
2 Land and appurtenances.
3 Buildings and structures.
4 Miscellaneous equipment.
5 Plant appliances.
6 Machinery and machine tools.
7 Portable power tools.
8 Loose and hand tools.
9 Supervision.

MISCELLANEOUS LABOR AND CONSUMABLE SUPPLIES, CLASS 0.

Miscellaneous labor incident to operation which can not be located directly to a specific job order. Included in this class is the pay of employees cleaning shops and buildings, attendance on power plant, moving materials in shops, issuing tools, attendants in pump well, foundry labor (except supervision and plant repair work), operators of transportation shop.

Supplies and materials incident to operation which are applied to uses so general and in such small quantities as not to permit charging direct to specific job orders. Included in this class are coal, oil, waste, water, stationery, brooms, brushes, soap, toilet paper, and ice.

In every case where practicable, charges will be located to specific sections at the time incurred.

The following subclasses are established for producing sections (other than foundries, see page 81.)

1. Miscellaneous.
2. Office, shop store, and tool room expense.
3. Fuel.
4. Direct labor and material in Title Z shops.

Subclasses for general expense departments are established as appearing in the detailed accounts.

LOSSES AND GRATUITIES, CLASS 1.

This class will include charges under the following subaccounts:

1. Damage and waste.
2. Scrap credits.
3. Depreciation.
7. Leave.
8. Holiday.
9. Disability.

Charges for damage and waste will be located against the section which made the error, but no charges will be made until authority for the same has been obtained from a proper supervisor of the force making the error, or a mutual superior of the supervisors concerned.

Labor and material expended in the replacement of work spoiled on account of errors in drawings or plans will be charged to damage and

waste of group 042, drafting. If work is spoiled by improper machining, the cost of replacement will be charged to the shop responsible for the error. In the case of defective castings the cost of replacement, as well as the labor and material expended in machining up to the point where the defect is discovered, will be charged to the account defective castings of the proper foundry, unless the pattern from which the casting is made is of such an intricate or complex nature that wasters are expected, in which case the cost of replacement should be charged to the job order under which the work was originally performed. The replacement of defective forgings caused by the use of defective material will be charged to the shop expense of the shop concerned.

In the accounting office minor discrepancies or omissions in charges will be placed in this account under the shop or department where the error occurs, and the shop supervisor will be notified of the transaction.

The scrap value of machinings, borings, turnings, drillings, trimmings, and short ends returned to store on returned material stubs, if not a proper credit to a specific job, will be credited to this account under the proper purpose section or group, appropriation indeterminate.

Leave, holiday, and disability pay and depreciation will also be charged in the accounting office to this account under the proper purpose section or group.

LAND AND APPURTENANCES, CLASS 2.

This class includes all land and grounds, with their improvements, including sea walls, piers, roads, walks, gutters, lawns, underground conduit systems, railroad tracks, distributing systems outside of buildings, sewer and water systems, and drains.

Charges under this class are restricted to groups 00, 01, 02, 03, and 07.

BUILDINGS AND STRUCTURES, CLASS 3.

Includes all buildings and structures and their appurtenances; includes roofs, floors, walls, railroad tracks in buildings, drains and sewers (inside), piping (inside), air, oil, gas, steam, water; radiators, light wiring (inside).

Charges for repairs will indicate the number of the building and will be located to sections or groups.

Examples: Storehouses, shops, quarters, sheds, dry docks, and marine railways; building ways; elevators.

Charges for cleaning are located in class 0.

MISCELLANEOUS EQUIPMENT, CLASS 4.

Articles which assist in work, other than those assigned to class 5.

Examples: Furniture, workbenches, handcarts, hand trucks, hand hoists, blocks, templates, molds, patterns, flasks.

Charges will be located to sections or groups.

Repairs, replacements and additions to stock will be charged to Title G, unless otherwise specifically authorized by the Bureau of Supplies and Accounts.

Inventories and adjustments will be made as prescribed for loose and hand tools (class 8).

Labor and material expended in the preparation of plans and drawings or the manufacture of patterns, dies, jigs, templates, holding devices, etc., for standard product will be charged to Title G of the section concerned, under this account; expenditures for nonstandard equipment of this nature will be lodged against the job order concerned.

PLANT APPLIANCES, CLASS 5.

Power-plant appliances, handling apparatus, and other assisting appliances specifically classed as individual items of plant.

Includes power-plant boilers, piping, furnaces, all railroad rolling stock, live stock, vehicles, derricks, shears, yard boilers and engines, yard scales, all floating property not on the Navy list, yard or shop cranes, and testboards. All typewriters, calculating machines, addressographs, blue-printing machines, and such other items as may be *specifically* designated by the Bureau of Supplies and Accounts are also assigned to this class (see list at p. 100.)

TOOLS (GENERAL DEFINITION FOR ALL TOOLS).

A tool—whether a machine tool, portable power tool, or hand tool—is an instrument or any piece of apparatus pertaining to production which changes the shape or condition of the material worked on.

MACHINERY AND MACHINE TOOLS, CLASS 6.

A stationary tool using power or fuel in its operation.

Examples: Bending rolls, boring mills, carving machines, drill presses, grinding machines, lathes, milling machines, planers, punch presses, sandpapering machines, band, circular, and jig saws; shapers, slotters, steam hammers, triphammers, stickers, mortise machines, blowers, kilns, cupolas, forges, furnaces, etc.

Power-plant machinery: Engines, generators, etc.

In making charges, the machine inventory number will be stated in each case where possible.

PORTABLE POWER TOOLS, CLASS 7.

A portable tool using power or fuel in its operation.

Examples: Air tools, hose (air, gas, oil, steam), portable electric drills, gasoline torches, riveting forges, portable acetylene welding apparatus, etc.

Repairs, replacements, and additions to stock will be charged to Title G unless otherwise specifically authorized by the Bureau of Supplies and Accounts.

Inventories and adjustments will be made as prescribed for loose and hand tools (Class 8).

LOOSE AND HAND TOOLS, CLASS 8.

Tools for manual use, not requiring fuel or power, and attachments and small tools for machine tools and portable power tools not part of the equipment of any particular machine or portable power tool.

Examples: Stocks, taps and dies (for cutting threads), gauges, micrometers, calipers, files, all tools pertaining to any special trade, such

as blacksmiths', carpenters', electricians', joiners', machinists', tinsmiths', plumbers' tools, cutting tools and holding devices for machine and portable power tools, such as milling cutters, planer tools, reamers, drills, countersinks, bolts and clamps, dogs, V blocks, parallel strips, angle plates, planer jacks, etc.

All repairs and replacements and additions to stock of loose and hand tools will be charged to Title G.

When in the judgment of the commandant or industrial manager the plant valuation under this class has materially increased or decreased, an inventory and appraisal will be made and the results reported to the Bureau of Supplies and Accounts for authority to make the necessary adjustments.

SUPERVISION, CLASS 9.

This class includes the pay and allowances of all officers on industrial duty and the wages of all foremen, quartermen, and leading men, which will be located to this account under the group or section concerned

PURPOSE GROUPS (ACCOUNTS).

12. Following are the purpose groups:

GENERAL PLANT ACTIVITIES—NONPRODUCING.

Group 00.—Grounds and miscellaneous.
Sec. 1.—Grounds and water front.
2.—Communications.
3.—Fire protection.

Group 01.—Supply.
Sec. 1.—Fleet fuel supply.
2.—Stores supply.
3.—Testing and inspecting.
4.—Purchase.

Group 02.—Transportation.
Sec. 1.—Locomotive.
2.—Crane.
3.—Motor truck.
4.—Team.
5.—Hand.
6.—Water.

Group 03.—Power.
Sec. 1.—Heat.
2.—Steam.
3.—Hydraulic.
4.—Air.
5.—Electric.

Group 04.—Administration.
Sec. 1.—Clerical.
2.—Drafting.
3.—Estimating and planning.
4.—Accounting.
5.—Janitors and watchmen.
6.—Dispensary.
7.—Disbursing.
8.—Officers.
9.—General supervisors.

Group 05.—Building ways.

Group 06.—Central tool shop.

Group 07.—Military activities.
Sec. 1.—
2.—Schools.
3.—Receiving ship activities.
4.—Radio stations.
5.—Marine barracks.
6.—Commissary store.
7.—Prison.
8.—
9.—Miscellaneous activities.

STANDARD CLASSIFICATION OF SHOPS—PRODUCING.

Group 1.—Structural.
Sec. 1.—Plate and angle.
2.—Chipping, etc.
5.—Laying out, etc.
6.—Fitting.
7.—Sheetmetal, machine.
8.—Sheet metal, hand.
9.—Wirework.

Group 2.—Smith and special hull.
Sec. 1.—Angle smith.
2.—Drop forge.
3.—Ship smith.
5.—Gas manufacturing.
6.—Gas cutting and welding.
7.—Galvanizing.
8.—Electroplating.

STANDARD CLASSIFICATION OF SHOPS—Continued.

Group 3.—Machinists.
Sec. 1.—Machine shop.
7.—Projectile factory.
8.—Machinists, hand.

Group 4.—Boilermakers.
Sec. 1.—Boilermakers, machine.
4.—Boilermakers, hand.

Group 5.—Electrical and pipe.
Sec. 1.—Electricians, machine.
2.—Electricians, hand.
3.—Coppersmith.
6.—Pipe fitting.
8.—Plumbers, machine.
9.—Plumbers, hand.

Group 6.—Woodwork.
Sec. 1.—Shipwright, machine.
2.—Shipwright, hand.
3.—Joiner, machine.
4.—Joiner, hand.
5.—Spar makers.
7.—Wood calkers.
8.—Boat.

Group 7.—Laborers and miscellaneous hull.
Sec. 1.—Painting.
2.—Laborers and riggers, outside.
4.—Rigging loft.
6.—Sail loft.
8.—Upholsterers.

Group 8.—Building trades.
Sec. 1.—House carpenter.
2.—Masons.
3.—Wharf builders.
4.—Concrete laborers.

Group 9.—Foundries and manufacturing.
Sec. 1.—Foundry, iron.
2.—Foundry, brass.
3.—Foundry, steel (or smelting).
4.—Pattern.
5.—Dry docks.
6.—Paint manufacturing.
7.—Rope walk (or flag shop).
8.—Wire-rope mill (or tool manufacturing or coffee roaster).
9.—Chain shop (or clothing factory).

GENERAL EXPENSE ACCOUNTS.

(General yard maintenance, as described in the accounts under this heading, shall always be charged to these expense accounts, except that in the case of drafting and planning and estimating charges shall be made directly to productive job orders when practicable—see remarks under sections 042 and 043. When charging to expense, always charge to *specific* accounts and sections wherever possible and proper.)

GROUNDS AND MISCELLANEOUS GROUP.

MISCELLANEOUS.—Yard maintenance charges which can not be located to any other nonproducing or producing group or section:

0000 **Miscellaneous Labor and Consumable Supplies.**

0001 **Losses and Gratuities.**

0003 **Buildings and Structures:** Repairs to.

0004 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0005 **Plant Appliances:** Repairs to.

0006 **Machine Tools:** Repairs to. (Includes spare motors not assigned to any shop.)

0007 **Portable Power Tools:** Repairs, replacements, and additions to plant.

0008 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.

NOTE.—Charges to the above accounts are not to be made if they can possibly be logically located elsewhere and will not be made without the approval of a head of division or his authorized assistant. Supervisors not assigned to any one shop are chargeable to section 049.

GROUNDS AND WATER FRONT.

0010 **Miscellaneous Labor:** Includes the time of employees engaged in cleaning the yard, in disposing of yard and ship refuse, and in tending street lights.

0010 **Consumable Supplies:** Includes all consumable supplies used by the yard-cleaning force (oil, disinfectant, brooms, etc., refuse cans outside of buildings). Globes, carbons, bulbs, etc., for street lights.

0011 **Losses and Gratuities:** On account of employees engaged in cleaning the yard or tending street lights.

00121 **Grounds:** Repairs to grounds, walls and fences, roads, walks and gutters, sewer system, water system, etc.

00122 **Water Front:** Dredging and repairs to sea walls, piers, etc.

0014 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. Includes pushcarts and other facilities used by yard-cleaning force which are not properly chargeable to transportation department. Includes gangways for use on piers or dry docks.

0015 **Plant Appliances:** Repairs to. Includes ash and garbage lighters, dredges, pile drivers, street-sweeping machines, power mowers, and sprinkling carts. Includes landing stages.

0018 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used by yard-cleaning force (shovels, rakes, hoes, etc.).

0019 **Supervision** of force employed in cleaning and repairing grounds, walls and fences, roads, walks and gutters, sewer system, sea walls, piers.

COMMUNICATIONS (telephone, telegraph, and tube system).

0020 **Miscellaneous Labor:** Includes pay of civilian operators.

0020 **Consumable Supplies.**

0021 **Losses and Gratuities** on account of operators.

0022 **Installation,** complete, inside and out: Repairs to (including switchboards, instruments, cables, tubes, etc.).

0023 **Buildings and Structures:** Repairs to special buildings occupied by exchanges.

FIRE PROTECTION.

0030 **Miscellaneous Labor:** Cleaning and inspection of equipment, washing hose, etc., pay of employees on permanent duty in fire department and other employees attending fires and fire drills.

0030 **Consumable Supplies:** (Fuel, water, oil, waste, chemicals.)

0031 **Losses and Gratuities** on account of employees.

0032 **Land and Appurtenances:** Repairs to outside fire plugs, fire-alarm system.

0033 **Buildings and Structures** occupied for fire-protection purposes: Repairs to.

0034 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of hose, hose reels, inside fixtures, desks, furniture.

0035 **Plant Appliances:** Repairs to ladder wagons and fire engines.

0038 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used by fire-protection section.

SUPPLY GROUP.

GENERAL.—Includes supply group charges under the following heads which can not be located to any one section of the group. These general charges should be kept down to the minimum; all ordinary storehouse expense is chargeable to section 012, office expense to 012 and 014.

01001 **Miscellaneous** labor and supplies in supply group not chargeable to any specific section.

01002 **Clerical Force and Stationery** in supply group not chargeable to any specific section.

0101 **Losses and Gratuities** in supply group not chargeable to any specific section.

0103 **Buildings and Structures:** Repairs to buildings used for supply purposes, but not chargeable to any specific section.

0104 **Miscellaneous Equipment:** Repairs, replacement, and additions to plant of miscellaneous equipment in supply group not assignable to any specific section.

0105 **Plant Appliances:** Repairs to plant appliances in the supply group not assignable to any specific section.

0107 **Portable Power Tools:** Repairs, replacements, and additions to plant of portable power tools in the supply group not assignable to any specific section (air tools, electric drills, etc.).

0108 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of loose and hand tools used by the supply group, but not assignable to any specific section.

FLEET FUEL SUPPLY.

01101 **Miscellaneous** labor and supplies.

01102 **Clerical Force and Stationery.**

0111 **Losses and Gratuities** on account of employees.

0112 **Fuel-oil Distributing System** for ships, outside of buildings. Repairs to.

0113 **Buildings and Structures:** Repairs to buildings and structures used for fuel supply, coaling plants, oil-storage tanks, etc. Repairs to coaling-plant tracks.

0114 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. (Furniture, handcarts, cars, trucks, and coal-handling apparatus.)

0115 **Plant Appliances:** Repairs to coal and water barges and other appliances used by the fuel-supply section.

0116 **Machine Tools**: Repairs to motors.

0118 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used by the fuel-supply section. (Shovels, wrenches, bars, hammers, picks.)

0119 **Supervision:** Pay of supervisors, except clerks, employed in connection with fuel supply to ships.

NOTE.—Fuel-oil systems for shops, see note under 012.

STORES SUPPLY.

01201 **Miscellaneous** labor and supplies.

01202 **Clerical Force and Stationery.**

01203 **Handling Stores:** Labor and supplies.

01204 **Packing Shipments:** Labor and supplies.

0121 **Losses and Gratuities** on account of employees.

0123 **Buildings and Structures:** Repairs to storehouses, etc.

0124 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. (Hoists, scales, desks, cabinets, stacking machines, etc.)

0125 **Plant Appliances:** Repairs to. (Includes typewriters, adding machines, etc.)

0126 **Machine Tools** (including motors and shafting): Repairs to machine tools used by the stores-supply section. (As cold-metal power saws.)

0128 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used by the stores-supply section. (Hack-saw frames, hammers, screw drivers, pincers, and nail pullers.)

0129 **Supervision:** Pay of supervisors, except clerks, employed in connection with stores supply.

NOTES.—Separate fuel-oil systems for shops are chargeable to this section unless assignable to specific shops.

Repairs to supplies in store are not chargeable to supply expense; charge to Title P or V.

TESTING AND INSPECTING.

01301 **Miscellaneous** labor and supplies for testing and inspecting materials. (Pay of mechanics, helpers, cleaners.) The pay of employees testing materials for a specific job is chargeable to the job. Testing for the naval service is chargeable to job orders under Title V, account 14.

01302 **Clerical Force and Stationery.** Includes pay of chemists and laboratorians.

0131 **Losses and Gratuities** on account of employees.

0133 **Buildings and Structures:** Repairs to buildings occupied by testing laboratories.

0134 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of benches, desks, racks, tanks, etc., used in testing and inspecting materials.

0135 **Plant Appliances:** Repairs to plant appliances used in testing and inspecting materials.

0136 **Machine Tools** (including motors and shafting): Repairs to machine tools used by testing laboratories, testing machines (power drive), furnaces, etc.

0138 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of hand tools used in testing and inspecting materials. Includes all small laboratory equipment.

NOTE.—This section includes all testing and inspecting in the supply or other departments, except where properly chargeable to expense of a specific shop.

PURCHASE.

01401 **Miscellaneous** labor and supplies in Navy purchasing office or purchasing section of supply department.

01402 **CLERICAL FORCE AND STATIONERY.**

0141 **Losses and Gratuities** on account of employees.

0143 **Buildings and Structures:** Repairs to special buildings occupied by the purchasing section.

0144 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of desks, cabinets, etc., used by the purchasing section.

0145 **Plant Appliances:** Repairs to. (Includes typewriters, adding machines, etc.)

PROVISIONS AND CLOTHING DEPOT (NEW YORK).

01501 **Miscellaneous** labor and supplies.
01502 **Clerical Force and Stationery.**
0151 **Losses and Gratuities.**
0153 **Buildings and Structures:** Repairs to.
0154 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0155 **Plant Appliances:** Repairs to.
0156 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
0157 **Portable Power Tools:** Repairs, replacements, and additions to plant.
0158 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
0159 **Supervision.**

YARD TRANSPORTATION GROUP.

(Transportation in shops is chargeable to shop expense or job orders.)

GENERAL.

0200 **Miscellaneous Labor** in the transportation department which can not be located to any one section.
0200 **Consumable Supplies** for the transportation department which can not be located to any one section.
0201 **Losses and Gratuities** in the transportation department which can not be located to any one section.
0202 **Tracks:** Repairs to tracks outside of buildings.
0203 **Buildings and Structures:** Repairs to buildings of the transportation department not occupied by any one section.
0204 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by the transportation group which can not be located to any one section.
0205 **Plant Appliances:** Repairs to plant appliances used by the transportation department which can not be located to any one section.
0208 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools for the transportation department which can not be located to any one section.
0209 **Supervision:** Pay of supervisors, except clerks, which can not be located to any one section.

LOCOMOTIVE SERVICE.

0210 **Miscellaneous Labor:** Pay of train crews while operating locomotives or trains.
0210 **Consumable Supplies** used in the operation of locomotive service. (Fuel, waste oil, water.)
0211 **Losses and Gratuities** on account of employees of the locomotive service.
0213 **Locomotive Sheds:** Repairs to.

0215 **Rolling Stock:** Repairs to locomotives, cars, and their equipment, and to plant appliances used by the locomotive service.

0219 **Supervision** of locomotive service.

CRANE SERVICE. Includes yard cranes outside of buildings.

0220 **Miscellaneous Labor** employed in the crane-service section. Includes operation of cranes; cranemen, firemen, etc.

0220 **Consumable Supplies** used by the crane-service section; fuel, waste, oil, water, etc.

0221 **Losses and Gratuities** in the crane service section.

0224 **Miscellaneous Equipment:** Repairs, replacements, and additions to stock of miscellaneous equipment.

0225 **Cranes:** Repairs to cranes and other plant appliances used by the crane-service section.

0229 **Supervision** of employees of the crane-service section.

MOTOR-TRUCK SERVICE.

0230 **Miscellaneous Labor** employed by the motor-truck service. (Chauffeurs, helpers, cleaners.)

0230 **Consumable Supplies** for use of the motor-truck service. (Fuel, oil, waste, water, etc.)

0231 **Losses and Gratuities** in the motor-truck service.

0233 **Garages:** Repairs to.

0234 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0235 **Trucks:** Repairs to motor trucks and other plant appliances.

0239 **Supervision** of employees of the motor-truck service.

TEAM SERVICE.

0240 **Miscellaneous Labor** for the team service section. (Time of teamsters and helpers, stablemen.)

0240 **Consumable Supplies** used by the team service. (Forage, oil, grease, brooms, soap, currycombs, brushes.)

0241 **Losses and Gratuities** on account of employees of the team service.

0243 **Stables:** Repairs to.

0244 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by the team service. (Bins, harness, furniture, etc.)

0245 **Vehicles and Live Stock:** Repairs to wagons, trucks, carriages, and other plant appliances; horseshoeing and veterinary services.

0248 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used by team service. (Wrenches, jacks, clippers, horseshoeing tools.)

0249 **Supervision** of team service section.

TRANSPORTATION BY HAND.—If not assignable to any shop or to section 001—Grounds and Waterfront.

0250 **Miscellaneous Labor and Consumable Supplies:** Pay of all employees engaged in hand transportation and supplies.

0251 **Losses and Gratuities.**

0254 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0258 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.

0259 **Supervision.**

WATER TRANSPORTATION.—All floating property not carried on the Navy List, except floating docks, which are under section 95, except coal and water barges, which are under section 011, and except dredges, pile-drivers, and ash and garbage lighters, which are under section 001. Includes cranes, derricks, tugs, lighters, barges, etc. Includes dry-dock floats available for general water-front use.

0260 **Miscellaneous Labor:** Pay of all civilian employees in the Water Transportation Service.

0260 **Consumable Supplies** for water transportation section. (Fuel, water, oil, waste.)

0261 **Losses and Gratuities** in the water transportation section.

0264 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of office equipment.

0265 **Floating Property:** Repairs to the floating property carried under this section and to all equipment thereon, and to plant appliances in use in the water transportation section.

0269 **Supervision** of employees assigned to the water transportation section.

NOTE.—All charges incurred for yard craft carried on the Navy List will be made to ship job orders, and all stores issued will be invoiced by the supply officer to the officer in charge under Titles B or C.

POWER GROUP.

GENERAL.

03001 **Miscellaneous Labor and Attendance:** Includes the pay of attendants in central power plant whose duties are not directly connected with any one kind of power.

03001 **Consumable Supplies:** Includes brooms, brushes, mops, sandpaper, emery paper, toilet paper, soap, sponges, towels, etc., not directly chargeable to any one kind of power.

03002 **Water.**

03003 **Fuel.**

03004 **Oil, Grease, and Waste.**

0301 **Losses and Gratuities** occasioned by the power group.

0302 **Distributing Systems** outside of buildings which are not directly chargeable to any one kind of power. Repairs to.

0303 **Power Plant Buildings:** Repairs to.
0304 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment; includes furniture and office equipment, clocks, etc.
03051 **Boilers and Fittings:** Repairs to. (Includes settings and foundations, furnaces, stokers, water heaters, superheaters, economizers, etc.)
03052 **Piping:** Repairs to.
03053 **Coal and Ash Handling Apparatus,** feed pumps, meters, etc. Repairs to.
0306 **Machinery and Machine Tools:** Repairs to power-plant machinery and equipment not used solely for the production of one kind of power.
0308 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of small tools used in power plant, such as shovels, pokers, scrapers, flue cleaners, machinists' tools.
0309 **Supervision** of the force employed in central power plant and not directly chargeable to any one section of the power group.

HEAT.

03101 **Miscellaneous Labor:** Pay of attendants employed in the production of heat for buildings or vessels.
03101 **Consumable Supplies** used in the production of heat for buildings or vessels.
03102 **Water.**
03103 **Fuel.**
0312 **Heat Distributing System** outside of buildings, repairs to. Repairs inside of buildings are charged to the group and section using the heat and class 3 buildings. (Example: 0403, repairs to heating system in office buildings.)
0316 **Machinery and Machine Tools:** Repairs to machinery and machine tools used entirely for heat production.
0319 **Supervision** of the force employed in manufacturing heat for heating buildings or vessels.

STEAM POWER.—"Steam Power" will be interpreted to mean steam delivered for power purposes outside of the power plant; as for dry kilns, steam hammers, etc.

03201 **Miscellaneous Labor:** Pay of attendants employed in the production of steam power.
03201 **Consumable Supplies** used by the force employed in the production of steam power. (Brooms, soap, etc.)
03202 **Water.**
03203 **Fuel.**
03204 **Oil, Grease, and Waste.**
0322 **Steam Power Distributing System** outside of buildings. Repairs to. Repairs inside of buildings will be charged under class 3 to the shop using the power.
0326 **Machinery and Machine Tools:** Repairs to machinery and machine tools used only in the production of steam power.

0329 **Supervision** of the force employed in the production of steam power.

HYDRAULIC POWER.

03301 **Miscellaneous Labor:** Pay of attendants on the hydraulic power plant.

03301 **Consumable Supplies** used in the production of hydraulic power. (Brooms, soap, brushes, etc.)

03302 **Water.**

03303 **Fuel.**

03304 **Oil, Grease, and Waste.**

0332 **Hydraulic Power Distributing System** outside of buildings. Repairs to. Repairs inside of buildings will be charged under class 3 to the shop using the power.

0336 **Machinery and Machine Tools:** Repairs to machinery and machine tools used in the production of hydraulic power, as pumps.

0339 **Supervision** of employees engaged in the production of hydraulic power.

AIR POWER.

03401 **Miscellaneous Labor:** Pay of attendants on air-compressing plant.

03401 **Consumable Supplies** used in the production of compressed air. (Brooms, brushes, soap, etc.)

03402 **Water.**

03403 **Fuel.**

03404 **Oil, Grease, and Waste.**

0342 **Air Distributing System** outside of buildings. Repairs to. Repairs inside of buildings will be charged under class 3 to the shop using the power.

0346 **Machinery and Machine Tools:** Repairs to machinery and machine tools used in the production of compressed air. Air compressors.

0347 **Portable Power Tools:** Repairs, replacements, and additions to plant. At yards where all air hose and pneumatic tools are under cognizance of power plant this account shall be used for maintenance charges. Otherwise, charge to class 7 under the shop concerned.

0349 **Supervision** of employees engaged in air-power production.

ELECTRIC POWER.

03501 **Miscellaneous Labor:** Pay of attendants employed in producing electric power.

03501 **Consumable Supplies** used by employees producing electric power.

03502 **Water.**

03503 **Fuel.**

03504 **Oil, Grease, and Waste.**

0352 **Electric Distributing System** outside of buildings. Repairs to. Repairs inside of buildings will be charged under class 3 to the shop using the power.

03522 **Underground Conduits** and pole lines, repairs to.
03523 **Substation Motors and Accessories:** Repairs to.
0353 **Substation Buildings:** Repairs to.
0354 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of portable lighting sets. Charges for temporary connections will be made to ship job orders.
0356 **Machinery and Machine Tools:** Repairs to machinery and machine tools used for producing electric power. (Generators, turbines, exciters, engines.)
0359 **Supervision** of the force employed in the production of electric power.

SALT WATER (Mare Island).

03601 **Miscellaneous Labor and Consumable Supplies.**
03602 **Water.**
03603 **Fuel.**
03604 **Oil, Grease, and Waste.**
0361 **Losses and Gratuities.**
0362 **Distributing System** outside of buildings.
0363 **Buildings:** Repairs to.
0364 **Miscellaneous Equipment:** Repairs, replacements, and additions.
03651 **Boilers and Fittings:** Repairs to.
03652 **Piping:** Repairs to.
0366 **Machinery and Machine Tools:** Repairs to.
0368 **Loose and Hand Tools:** Repairs, replacements, and additions.
0369 **Supervision.**

ADMINISTRATION GROUP.

GENERAL.

0400 **Consumable Supplies** for administrative force generally not assignable to any one section; as books, magazines, etc.
0403 **Buildings:** Repairs to all office buildings occupied by the administration group.

CLERICAL.—(Unassignable to any other group or section.)

0410 **Miscellaneous Labor,** clerical, employed in the hull and machinery divisions, public works department, inspection office, labor board, commandant's office, correspondence section.
0410 **Consumable Supplies** used by the force designated above. (Stationery, etc.)
0411 **Losses and Gratuities** on account of employees designated above.
0414 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by the force designated above. (Furniture, etc.)
0415 **Office and Plant Appliances:** Repairs to. (includes typewriters, etc.)

DRAFTING.

0420 **Miscellaneous Labor:** Pay of draftsmen when employed on work not chargeable to a specific job order. All draftsmen engaged on new construction work will be charged to Title A under the appropriation from which appointed. So far as practicable the pay of all other draftsmen whose time can be located to specific work will be charged thereto under the title concerned and job orders issued under the appropriation from which appointed.

0420 **Consumable Supplies** used in the drafting room. (Drawing paper, tracing cloths, inks.)

0421 **Losses and Gratuities** on account of the drafting force. Charge to this account work spoiled on account of errors in drawings or plans.

0424 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. (Includes tables, cabinets, desks, etc.)

0425 **Office and Plant Appliances:** Repairs to.

0428 **Drafting Instruments:** Repairs, replacements, and additions to plant.

ESTIMATING AND PLANNING.

0430 **Miscellaneous Labor,** wages of employees of the planning, estimating, and material sections, whose time can not be located to a specific job order.

0430 **Consumable Supplies** used by the planning, estimating, and material sections.

0431 **Losses and Gratuities** on account of employees of the planning, estimating, and material sections.

0434 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by the planning, estimating, and material sections.

0435 **Office and Plant Appliances:** Repairs to plant appliances used by planners and estimators, including bicycles and typewriters.

0439 **Supervision:** Pay of supervisors, except clerks, of the planning, estimating, and material sections when employed on work not chargeable to a specific job order.

ACCOUNTING.

04401 **Miscellaneous** labor and supplies in accounting department.

04402 **Clerical Force and Stationery.**

0441 **Losses and Gratuities** on account of employees of the accounting department.

0444 **Miscellaneous equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment in the accounting department. (Desks, chairs, cabinets, etc.)

0445 **Office and Plant Appliances:** Repairs to. (Includes repairs to time clocks.)

JANITORS AND WATCHMEN.

0450 **Pay of Janitors and Watchmen** not assigned to a specific shop or department. Pay of ship keepers. (Charge other expenses for ships out of commission to Titles C, D, or K.)

0450 **Consumable Supplies** used by janitors and watchmen not assigned to a specific shop or department.

0451 **Losses and Gratuities** on account of janitors and watchmen.

0454 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by such janitors and watchmen. (Includes furniture, watchmen's clocks, etc.)

0455 **Office and Plant Appliances.** Repairs to. (Includes bicycles.)

DISPENSARY.

0460 **Miscellaneous Labor and Consumable Supplies.**

0461 **Losses and Gratuities.**

0464 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0465 **Plant Appliances:** Repairs to.

DISBURSING.

04701 **Miscellaneous** labor and supplies in yard disbursing department.

04702 **Clerical Force and Stationery.**

0471 **Losses and Gratuities.**

0474 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0475 **Plant Appliances:** Repairs to.

OFFICERS.

0480 **Consumable Supplies.**

0481 **Losses** occasioned by officers.

0483 **Quarters:** Repairs to.

0484 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0485 **Plant Appliances:** Repairs to.

0489 **Pay and Allowances** of all officers on duty at the yard and at the Navy purchasing office.

GENERAL SUPERVISORS.

0490 **Consumable Supplies.**

0491 **Losses and Gratuities.**

0493 **Quarters:** Repairs to.

0494 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0495 **Plant Appliances:** Repairs to.

0499 **Pay** of general supervisors.

NOTE.—The above accounts are to be used only for those supervisors not properly chargeable to other general expense sections or to the expense of specific shops.

BUILDING WAYS GROUP.

0500 **Miscellaneous Labor and Consumable Supplies.**
0503 **Structure:** Repairs to.
0504 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0505 **Plant Appliances:** Repairs to.

CENTRAL TOOL SHOP GROUP.

0600 **Miscellaneous Labor and Consumable Supplies** in the central tool shop.
0601 **Losses and Gratuities** in the central tool shop.
0603 **Buildings:** Repairs to buildings occupied by the central tool shop.
0604 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of miscellaneous equipment used by the central tool shop.
0605 **Plant Appliances:** Repairs to plant appliances used by the central tool shop.
0606 **Machine Tools** (including motors and shafting): Repairs to machine tools used by the central tool shop.
0607 **Portable Power Tools:** Repairs, replacements, and additions to plant of portable power tools used by the central tool shop.
0608 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of loose and hand tools used by the central tool shop.
0609 **Supervision** of employees of the central tool shop.

NOTE.—At yards having a central tool dressing and grinding plant the expense of maintaining it shall be charged to the above numbers. Wherever practicable the accounts of the shop for which the work is being done shall be charged with the expense of repairing, dressing, and grinding tools. Where impracticable, charges shall be lodged to the above numbers. The above accounts are not to be used for ordinary tool issuing room charges; such charges shall be made to the expense of the shop concerned.

MILITARY GROUP.

SCHOOLS.

0720 **Miscellaneous Labor and Consumable Supplies.**
0723 **Buildings:** Repairs to.
0724 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0725 **Plant Appliances:** Repairs to.
0726 **Machine Tools** (including motors and shafting): Repairs to.
0728 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
0729 **Supervision.**

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RECEIVING SHIP ACTIVITIES.

0730 **Miscellaneous Labor.**
0733 **Buildings and Structures:** Repairs to.

NOTE.—Expense charges for receiving ship offices and allied activities maintained for enlisted men are restricted to the above numbers. Issues of stationery and all other material and equipment, including band outfits, commandant's mess outfits and commandant's barge and outfit, shall not be charged to accounts under this group but shall be invoiced by the supply officer under Titles B or C.

RADIO STATIONS.

0740 **Miscellaneous Labor and Consumable Supplies.**
0742 **Land and Appurtenances.** (Only for stations outside the yard.)
0743 **Buildings and Structures:** Repairs to.
0744 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0745 **Plant Appliances:** Repairs to.
0746 **Machinery and Machine Tools:** Repairs to.
0748 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.

NOTE.—The above numbers are to be used only for labor and material charges, to be separately reported in reports of expenditures by name and number of the radio station concerned. All public bills will be charged direct to the radio station concerned by the Bureau of Supplies and Accounts under Title S, sub account 14.

MARINE BARRACKS.

0750 **Miscellaneous Labor and Consumable Supplies.**
0753 **Buildings and Structures:** Repairs to.

NOTE.—The above numbers are for charges under *naval* appropriations only.

COMMISSARY STORE.

0760 **Miscellaneous Labor and Consumable Supplies.**
0763 **Buildings and Structures:** Repairs to.
0764 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0765 **Plant Appliances:** Repairs to.

PRISON.

0770 **Miscellaneous Labor and Consumable Supplies.**
0773 **Buildings and Structures:** Repairs to.
0774 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
0775 **Plant Appliances:** Repairs to.
0776 **Machinery and Machine Tools:** Repairs to.
0778 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
0779 **Supervision of Prison.**

MISCELLANEOUS MILITARY ACTIVITIES.

0790 **Miscellaneous Labor and Consumable Supplies.**

0793 **Buildings and Structures:** Repairs to.

0794 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

0795 **Plant Appliances:** Repairs to.

0798 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.

NOTE.—The above accounts will include charges for saluting batteries, target rafts, target ranges, time stations, etc.

SHOP EXPENSE ACCOUNTS.

[Always charge to *specific* accounts and sections wherever possible and proper.]

GENERAL CHARGES.—Charges which can not possibly be localized or assigned directly to one of the below shops or sections will be charged to the following group numbers and designated in the same manner as other charges, i. e., by addition of the proper class number:

10 Structural Group.
20 Smith and Special Hull Group.
30 Machinists Group.
40 Boilermakers Group.
50 Electrical and Pipe Group.
60 Woodworking Group.
70 Laborers and Miscellaneous Hull Group.
80 Building Trades Group.
90 Foundry and Manufacturing Group.

PLATE AND ANGLE SHOP.—(Machine work, such as punching and shearing, plate planing, etc.)

X1101 **Miscellaneous** labor and consumable supplies.
X1102 **Office, Shop Store and Tool Room:** Labor and supplies.
X1103 **Fuel.**
X111 **Losses and Gratuities.**
X113 **Buildings and Structures:** Repairs to.
X114 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X115 **Plant Appliances:** Repairs to.
X116 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X117 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X118 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X119 **Supervision.**

CHIPPING, CALKING, RIVETING.—(Pneumatic tools and hand tools.)

X1201 **Miscellaneous** labor and consumable supplies.
X1202 **Office, Shop Store and Tool Room:** Labor and supplies.
X1203 **Fuel.**
X121 **Losses and Gratuities.**
X124 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X125 **Plant Appliances:** Repairs to.
X127 **Portable Power Tools:** Repairs, replacements, and additions to plant. Includes rivet forges and air hammers.
X128 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X129 **Supervision.**

LAYING OUT AND TEMPLATING, SHOPWORK (includes mold loft. Covers all hand workers permanently in shop, who do more handwork than machine work, such as loftsmen and shipfitters).

X1501 **Miscellaneous** labor and consumable supplies.
X1502 **Office, Shop Store and Tool Room:** Labor and supplies.
X1503 **Fuel.**
X151 **Losses and Gratuities.**
X153 **Buildings and Structures:** Repairs to.
X154 **Miscellaneous equipment:** Repairs, replacements, and additions to plant.
X155 **Plant Appliances:** Repairs to.
X156 **Machine Tools** (including motors and shafting): Repairs to.
X157 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X158 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X159 **Supervision.**

FITTING AND BOLTING (Handwork outside).

X1601 **Miscellaneous Labor** and consumable supplies.
X1602 **Office, Shop Store and Tool Room:** Labor and supplies.
X1603 **Fuel.**
X161 **Losses and Gratuities.**
X164 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X165 **Plant Appliances:** Repairs to.
X168 **Loose and Hand Tools:** Repairs, replacements, and additions to plant. Includes all shipfitters' (outside) standard set of hand tools.
X169 **Supervision.**

SHEET-METAL SHOP, MACHINE.

X1701 **Miscellaneous** labor and consumable supplies.
X1702 **Office, Shop Store and Tool Room:** Labor and supplies.
X1703 **Fuel.**
X171 **Losses and Gratuities.**
X173 **Buildings and Structures:** Repairs to.
X174 **Miscellaneous Equipment:** Repairs, replacements, and additions.
X175 **Plant Appliances:** Repairs to.
X176 **Machine Tools** (including motors and shafting): Repairs to.
X177 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X178 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X179 **Supervision.**

SHEET METAL, HAND (Handwork inside and outside).

X1801 **Miscellaneous** labor and consumable supplies.
X1802 **Office, Shop Store and Tool Room:** Labor and supplies.
X1803 **Fuel.**

X181 **Losses and Gratuities.**
X183 **Buildings:** Repairs to.
X184 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X185 **Plant Appliances:** Repairs to.
X186 **Machine Tools** (including motors and shafting): Repairs to.
X187 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X188 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X189 **Supervision.**

WIREWORK (Machine and handwork).
X1901 **Miscellaneous** labor and consumable supplies.
X1902 **Office, Shop Store and Tool Room:** Labor and supplies.
X1903 **Fuel.**
X191 **Losses and Gratuities.**
X193 **Buildings:** Repairs to.
X194 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X195 **Plant Appliances:** Repairs to.
X196 **Machine Tools** (including motors and shafting): Repairs to.
X197 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X198 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X199 **Supervision.**

ANGLE SMITH (furnace work, bending, welding, etc., of plates and shapes.)
X2101 **Miscellaneous** labor and consumable supplies.
X2102 **Office, Shop Store and Tool Room:** Labor and supplies.
X2103 **Fuel.**
X211 **Losses and Gratuities.**
X213 **Buildings and Structures:** Repairs to.
X214 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. (Includes bending slabs.)
X215 **Plant Appliances:** Repairs to.
X216 **Machine Tools** (including motors and shafting): Repairs to. (Includes furnaces.)
X217 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X218 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X219 **Supervision.**

DROP FORGING.
X2201 **Miscellaneous** labor and consumable supplies.
X2202 **Office, Shop Store and Tool Room:** Labor and supplies.
X2203 **Fuel.**
X221 **Losses and Gratuities.**
X223 **Buildings and Structures:** Repairs to.

X224 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant. Includes dies.
X225 **Plant Appliances:** Repairs to.
X226 **Machine Tools** (including motors and shafting): Repairs to.
X228 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X229 **Supervision.**

SHIPSMITH.—(Hand forging and press and hammer.)
X2301 **Miscellaneous** labor and consumable supplies.
X2302 **Office, Shop Store and Tool Room:** Labor and supplies.
X2303 **Fuel.**
X231 **Losses and Gratuities.**
X233 **Buildings and Structures:** Repairs to.
X234 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X235 **Plant Appliances:** Repairs to.
X236 **Machine Tools** (including motors and shafting): Repairs to. Includes furnaces.
X238 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X239 **Supervision.**

GAS MANUFACTURING: General.
X2501 **Miscellaneous** labor and consumable supplies.
X2502 **Office, Shop Store and Tool Room:** Labor and supplies.
X2503 **Fuel.**
X2504 **Direct Labor and Material.**
X251 **Losses and Gratuities.**
X253 **Buildings:** Repairs to.
X254 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X255 **Plant Appliances:** Repairs to.
X256 **Machinery and Machine Tools** (including motors and shafting).
X257 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X258 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X259 **Supervision.**

NOTE.—Add figure 1 at end of above numbers for charges to Acetylene; figure 2 for Oxygen; figure 3 for Hydrogen.

GAS CUTTING AND WELDING.
X2601 **Miscellaneous** labor and consumable supplies.
X2602 **Office, Shop Store and Tool Room:** Labor and supplies.
X2603 **Fuel.**
X261 **Losses and Gratuities.**
X263 **Buildings and Structures:** Repairs to.
X264 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X265 **Plant Appliances:** Repairs to.

X267	**Portable Power Tools:** Repairs, replacements, and additions to plant. Covers portable generating plant.
X268	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X269	**Supervision.**
	GALVANIZING.
X2701	**Miscellaneous** labor and consumable supplies.
X2702	**Office, Shop Store and Tool Room:** Labor and supplies.
X2703	**Fuel.**
X2704	**Direct Labor and Material.**
X271	**Losses and Gratuities.**
X273	**Buildings and Structures:** Repairs to.
X274	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X275	**Plant Appliances:** Repairs to.
X276	**Machine Tools** (including motors and shafting): Repairs to.
X278	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X279	**Supervision.**
	ELECTROPLATING.
X2801	**Miscellaneous** labor and consumable supplies.
X2802	**Office, Shop Store and Tool Room:** Labor and supplies.
X2803	**Fuel.**
X2804	**Direct Labor and Material.**
X281	**Losses and Gratuities.**
X283	**Buildings and Structures:** Repairs to.
X284	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X285	**Plant Appliances:** Repairs to.
X286	**Machinery and Machine Tools** (including motors and shafting): Repairs to.
X288	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X289	**Supervision.**
	MACHINE SHOP.
X3101	**Miscellaneous** labor and consumable supplies.
X3102	**Office, Shop Store and Tool Room:** Labor and supplies.
X3103	**Fuel.**
X311	**Losses and Gratuities.**
X313	**Buildings and Structures:** Repairs to.
X314	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X315	**Plant Appliances:** Repairs to.
X316	**Machine Tools** (including motors and shafting): Repairs to.
X317	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X318	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X319	**Supervision.**

PROJECTILE FACTORY.

X3701 **Miscellaneous.**
X3702 **Office, Shop Store and Tool Room:** Labor and supplies.
X3703 **Fuel.**
X371 **Losses and Gratuities.**
X373 **Buildings and Structures:** Repairs to.
X374 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X375 **Plant Appliances:** Repairs to.
X376 **Machine Tools:** Repairs to.
X377 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X378 **Loose and Hand Tools:** Repairs, replacements, and additions.
X379 **Supervision.**

MACHINISTS HAND (bench, vise, and floor work, erecting and assembling in shop, hand and portable power tool work outside).

X3801 **Miscellaneous** labor and consumable supplies.
X3802 **Office, Shop Store and Tool Room:** Labor and supplies.
X3803 **Fuel.**
X381 **Losses and Gratuities.**
X383 **Buildings and Structures:** Repairs to.
X384 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X385 **Plant Appliances:** Repairs to.
X387 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X388 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X389 **Supervision.**

BOILER MAKERS, MACHINE.

X4101 **Miscellaneous** labor and consumable supplies.
X4102 **Office, Shop Store and Tool Room:** Labor and supplies.
X4103 **Fuel.**
X411 **Losses and Gratuities.**
X413 **Buildings and Structures:** Repairs to.
X414 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X415 **Plant Appliances:** Repairs to.
X416 **Machine Tools** (including motors and shafting): Repairs to.
X417 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X418 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X419 **Supervision.**

BOILER MAKERS, HAND (hand and portable power tool work in shop and outside).

X4401 **Miscellaneous** labor and consumable supplies.
X4402 **Office, Shop Store and Tool Room:** Labor and supplies.
X4403 **Fuel.**
X441 **Losses and Gratuities.**
X444 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X445 **Plant Appliances:** Repairs to.
X447 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X448 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X449 **Supervision.**

ELECTRICIANS, MACHINE.

X5101 **Miscellaneous** labor and consumable supplies.
X5102 **Office, Shop Store and Tool Room:** Labor and supplies.
X5103 **Fuel.**
X511 **Losses and Gratuities.**
X513 **Buildings and Structures:** Repairs to.
X514 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X515 **Plant Appliances:** Repairs to.
X516 **Machine Tools** (including motors and shafting): Repairs to.
X517 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X518 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X519 **Supervision.**

ELECTRICIANS, HAND (handwork in shop and outside).

X5201 **Miscellaneous** labor and consumable supplies.
X5202 **Office, Shop Store and Tool Room:** Labor and supplies.
X5203 **Fuel.**
X521 **Losses and Gratuities.**
X524 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X525 **Plant Appliances:** Repairs to.
X527 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X528 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X529 **Supervision.**

COPPERSMITH.

X5301 **Miscellaneous** labor and consumable supplies.
X5302 **Office, Shop Store and Tool Room:** Labor and supplies.
X5303 **Fuel.**
X531 **Losses and Gratuities.**

X533 **Buildings and Structures:** Repairs to.
X534 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X535 **Plant Appliances:** Repairs to.
X536 **Machine Tools** (including motors and shafting): Repairs to.
X537 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X538 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X539 **Supervision.**

PIPE FITTING.

X5601 **Miscellaneous** labor and consumable supplies.
X5602 **Office, Shop Store and Tool Room:** Labor and supplies.
X5603 **Fuel.**
X561 **Losses and Gratuities.**
X563 **Buildings and Structures:** Repairs to.
X564 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X565 **Plant Appliances:** Repairs to.
X566 **Machine Tools** (including motors and shafting): Repairs to.
X567 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X568 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X569 **Supervision.**

PLUMBERS, MACHINE.

X5801 **Miscellaneous** labor and consumable supplies.
X5802 **Office, Shop Store and Tool Room:** Labor and supplies.
X5803 **Fuel.**
X581 **Losses and Gratuities.**
X583 **Buildings and Structures:** Repairs to.
X584 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X585 **Plant Appliances:** Repairs to.
X586 **Machine Tools** (including motors and shafting): Repairs to.
X587 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X588 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X589 **Supervision.**

PLUMBERS, HAND (handwork in shop and outside).

X5901 **Miscellaneous** labor and consumable supplies.
X5902 **Office, Shop Store and Tool Room:** Labor and supplies.
X5903 **Fuel.**
X591 **Losses and Gratuities.**
X594 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

X595	**Plant Appliances:** Repairs to.
X597	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X598	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X599	**Supervision.**
	SHIPWRIGHTS, MACHINE (includes sawmill).
X6101	**Miscellaneous** labor and consumable supplies.
X6102	**Office, Shop Store and Tool Room:** Labor and supplies.
X6103	**Fuel.**
X611	**Losses and Gratuities.**
X613	**Buildings and Structures:** Repairs to.
X614	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X615	**Plant Appliances:** Repairs to.
X616	**Machine Tools** (including motors and shafting): Repairs to.
X617	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X618	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X619	**Supervision.**
	SHIPWRIGHTS, HAND (handwork in shop and outside).
X6201	**Miscellaneous** labor and consumable supplies.
X6202	**Office, Shop Store and Tool Room:** Labor and supplies.
X6203	**Fuel.**
X621	**Losses and Gratuities.**
X624	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X625	**Plant Appliances:** Repairs to.
X627	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X628	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X629	**Supervision.**
	JOINERS, MACHINE.
X6301	**Miscellaneous** labor and consumable supplies.
X6302	**Office, Shop Store and Tool Room:** Labor and supplies.
X6303	**Fuel.**
X631	**Losses and Gratuities.**
X633	**Buildings and Structures:** Repairs to.
X634	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X635	**Plant Appliances:** Repairs to.
X636	**Machine Tools** (including motors and shafting): Repairs to.
X638	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X639	**Supervision.**

JOINERS, HAND (handwork in shop and outside).

X6401	**Miscellaneous** labor and consumable supplies.
X6402	**Office, Shop Store and Tool Room:** Labor and supplies.
X6403	**Fuel.**
X641	**Losses and Gratuities.**
X644	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X645	**Plant Appliances:** Repairs to.
X648	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X649	**Supervision.**

SPAR MAKERS.

X6501	**Miscellaneous** labor and consumable supplies.
X6502	**Office, Shop Store and Tool Room:** Labor and supplies.
X6503	**Fuel.**
X651	**Losses and Gratuities.**
X653	**Buildings and Structures:** Repairs to.
X654	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X655	**Plant Appliances:** Repairs to.
X656	**Machine Tools** (including motors and shafting): Repairs to.
X657	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X658	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X659	**Supervision.**

WOOD CALKERS (handwork).

X6701	**Miscellaneous** labor and consumable supplies.
X6702	**Office, Shop Store and Tool Room:** Labor and supplies.
X6703	**Fuel.**
X671	**Losses and Gratuities.**
X673	**Buildings:** Repairs to.
X674	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X675	**Plant Appliances:** Repairs to.
X677	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X678	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X679	**Supervision.**

BOAT BUILDERS.

X6801	**Miscellaneous** labor and consumable supplies.
X6802	**Office, Shop Store and Tool Room:** Labor and supplies.
X6803	**Fuel.**
X681	**Losses and Gratuities.**
X683	**Buildings and Structures:** Repairs to.

X684	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X685	**Plant Appliances:** Repairs to.
X686	**Machine Tools** (including motors and shafting): Repairs to.
X687	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X688	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X689	**Supervision.**

PAINTING.

X7101	**Miscellaneous** labor and consumable supplies.
X7102	**Office, Shop Store and Tool Room:** Labor and supplies.
X7103	**Fuel.**
X711	**Losses and Gratuities.**
X713	**Buildings and Structures:** Repairs to.
X714	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X715	**Plant Appliances:** Repairs to.
X716	**Machine Tools** (including motors and shafting): Repairs to.
X717	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X718	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X719	**Supervision.**

LABORERS AND RIGGERS, OUTSIDE.

X7201	**Miscellaneous** labor and consumable supplies.
X7202	**Office, Shop Store and Tool Room:** Labor and supplies.
X7203	**Fuel.**
X721	**Losses and Gratuities.**
X723	**Buildings and Structures:** Repairs to.
X724	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X725	**Plant Appliances:** Repairs to.
X727	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X728	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X729	**Supervision.**

RIGGING LOFT.

X7401	**Miscellaneous** labor and consumable supplies.
X7402	**Office, Shop Store and Tool Room.**
X7403	**Fuel.**
X741	**Losses and Gratuities.**
X743	**Buildings and Structures:** Repairs to.
X744	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X745	**Plant Appliances:** Repairs to.

X746 **Machine Tools** (including motors and shafting): Repairs to.
X748 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X749 **Supervision.**

SAIL LOFT.

X7601 **Miscellaneous** labor and consumable supplies.
X7602 **Office, Shop Store and Tool Room:** Labor and supplies.
X7603 **Fuel.**
X761 **Losses and Gratuities.**
X763 **Buildings:** Repairs to.
X764 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X765 **Plant Appliances:** Repairs to.
X766 **Machine Tools** (including motors and shafting): Repairs to.
X768 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X769. **Supervision.**

UPHOLSTERERS.

X7801 **Miscellaneous** labor and consumable supplies.
X7802 **Office, Shop Store and Tool Room:** Labor and supplies.
X7803 **Fuel.**
X781 **Losses and Gratuities.**
X783 **Buildings and Structures:** Repairs to.
X784 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X785 **Plant Appliances:** Repairs to.
X786 **Machine Tools** (including motors and shafting): Repairs to.
X787 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X788 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X789 **Supervision.**

BUILDING TRADES.

X8001 **Miscellaneous** labor and consumable supplies.
X8002 **Office, Shop Store and Tool Room:** Labor and supplies.
X8003 **Fuel.**
X801 **Losses and Gratuities.**
X803 **Buildings and Structures** (occupied by this section): Repairs to.
X804 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X805 **Plant Appliances:** Repairs to.
X806 **Machine Tools** (including motors and shafting): Repairs to.
X807 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X808 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X809 **Supervision.**

HOUSE CARPENTERS.

X8101	**Miscellaneous** labor and consumable supplies.
X8102	**Office, Shop Store and Tool Room:** Labor and supplies.
X8103	**Fuel.**
X811	**Losses and Gratuities.**
X813	**Buildings and Structures:** Repairs to.
X814	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X815	**Plant Appliances:** Repairs to.
X817	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X818	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X819	**Supervision.**

MASONS.

X8201	**Miscellaneous** labor and consumable supplies.
X8202	**Office, Shop Store and Tool Room:** Labor and supplies.
X8203	**Fuel.**
X821	**Losses and Gratuities.**
X823	**Buildings and Structures:** Repairs to.
X824	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X825	**Plant Appliances:** Repairs to.
X826	**Machine Tools:** Repairs to.
X827	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X828	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X829	**Supervision.**

WHARF BUILDERS.

X8301	**Miscellaneous** labor and consumable supplies.
X8302	**Office, Shop Store and Tool Room:** Labor and supplies.
X8303	**Fuel.**
X831	**Losses and Gratuities.**
X833	**Buildings and Structures:** Repairs to.
X834	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X835	**Plant Appliances:** Repairs to.
X837	**Portable Power Tools:** Repairs, replacements, and additions to plant.
X838	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X839	**Supervision.**

CONCRETE LABORERS.

X8401	**Miscellaneous** labor and consumable supplies.
X8402	**Office, Shop Store and Tool Room:** Labor and supplies.
X8403	**Fuel.**

X841 **Losses and Gratuities.**
X843 **Buildings and Structures:** Repairs to.
X844 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X845 **Plant Appliances:** Repairs to.
X846 **Machine Tools:** Repairs to.
X847 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X848 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X849 **Supervision.**

FOUNDRY, IRON.

X9101 **Miscellaneous Labor:** Charge with wages of men whose time can not be located as direct labor or to any other expense account, such as wages of men removing castings, flasks, clamps, etc., wetting down floors and getting same in condition for molders; wages of cranemen, foundry clerk, foundry storeman, truckers, etc.
X9101 **Miscellaneous Supplies:** Includes sand, facings, chaplets, gaggers, fire clay and fire brick, brushes, resin, molasses, flour, linseed oil, fuel for skin-drying molds, fuel for core ovens, coal and charcoal for facings, sulphuric and nitric acid, etc.
X9102 **Blast Time:** Charge with time of molders and helpers pouring off.
X9103 **Cupola Labor:** Charge with time of men breaking stock, weighing charges, charging and tending cupolas, cleaning and daubing ladles, preparing cupola for day's heat.
X9103 **Melt Fuel:** Includes fuel and fuel oil used in cupolas and oil furnaces for melting.
X9104 **Direct Labor and Material.**
X9105 **Cleaning Room Labor:** Charge with time of men cleaning, grinding, rattling, and chipping castings in foundry.
X911 **Defective Castings:** Charge with labor and material consumed in replacing defective castings; also with the labor expended in machining up to the point where the defect was discovered. If the mold is so intricate that wasters are unavoidable, such charges should be lodged against the job order concerned and not to this account.
X913 **Buildings:** Repairs to.
X914 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant of foundry ladles (hand, bull, and crane), molding benches, draw screws, flasks, ingot molds, chills (standard), sweeps, core barrels, jib cranes, clothes lockers, office desks and chairs, filing equipment, etc., scales, mold weights, mold clamps, vats, tubs, bins, blocks and falls, anvils, pneumatic hoists, hand trucks, etc.

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X915 **Plant Appliances:** Repairs to. Traveling cranes, bicycles, adding machines, etc.

X916 **Machinery and Machine Tools:** Repairs to. Cupolas, oil furnaces, core ovens, crucible furnaces, blower engines (air compressors), air-pressure tanks, blowers, ladle-heating machines, welding machines, tumbling barrels, saw tables, emery grinders, molding machines, gate cutters, etc.

X917 **Portable Power Tools:** Repairs, replacements, and additions to plant. Includes air hose, pneumatic rammers, pneumatic sieves, oil-burning torches, and other air-driven tools, except molding machines.

X918 **Loose and Hand Tools:** Repairs, replacements, and additions to plant of molders' tools, etc., such as trowels (slickers, gaters, double enders, lifters, etc.), pipe slicks, flute, bead, double square, square corner, inside square corner, etc.; hand sieves, hand riddles, hand rammers, spray cans, shovels, straightedges, levels, hand hammers, handsaws, crucible tongs, etc.

X919 **Supervision.**

FOUNDRY, BRASS.

X9201 **Miscellaneous Labor.**

X9201 **Miscellaneous Supplies.**

X9202 **Blast Time.**

X9203 **Crucible Labor.**

X9203 **Melt Fuel.**

X9204 **Direct Labor and Material.**

X9205 **Cleaning Room Labor.**

X921 **Defective Castings.**

X923 **Buildings:** Repairs to.

X924 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.

X925 **Plant Appliances:** Repairs to.

X926 **Machinery and Machine Tools:** Repairs to.

X927 **Portable Power Tools:** Repairs, replacements, and additions to plant.

X928 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.

X929 **Supervision.**

NOTE.—The charges to these accounts will be similar to those detailed under the corresponding accounts of the iron foundry, X91.

FOUNDRY, STEEL.

X9301 **Miscellaneous Labor.**

X9301 **Miscellaneous Supplies.**

X9302 **Blast Time.**

X9303 **Cupola Labor.**

X9303 **Melt Fuel.**

X9304 **Direct Labor and Material.**

X9305 **Cleaning Room Labor.**

X931 **Defective Castings.**

X933 **Buildings:** Repairs to.
X934 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X935 **Plant Appliances:** Repairs to.
X936 **Machinery and Machine Tools:** Repairs to.
X937 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X938 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X939 **Supervision.**
NOTE.—The charges to these accounts will be similar to those detailed under the corresponding accounts of the iron foundry, X91.

SMELTING SHOP (Portsmouth).
X9301 **Miscellaneous Labor.**
X9301 **Miscellaneous Supplies.**
X9302 **Blast Time.**
X9303 **Cupola (and crucible) Labor.**
X9303 **Melt Fuel.**
X9304 **Direct Labor and Material.**
X931 **Losses and Gratuities.**
X933 **Buildings:** Repairs to.
X934 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X935 **Plant Appliances:** Repairs to.
X936 **Machinery and Machine Tools:** Repairs to.
X937 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X938 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X939 **Supervision.**
NOTE.—The charges to these accounts will be similar to those detailed under the corresponding accounts of the iron foundry, X91.

PATTERN SHOP.
X9401 **Miscellaneous** labor and supplies.
X9402 **Office, Shop Store and Tool Room:** Labor and supplies.
X9403 **Fuel.**
X941 **Losses and Gratuities.**
X943 **Buildings and Structures:** Repairs to.
X944 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X945 **Plant Appliances:** Repairs to.
X946 **Machine Tools** (including motors and shafting): Repairs to.
X948 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X949 **Supervision.**

DRY DOCKS: GENERAL.—(Including floating docks and marine railways).

X950	**Miscellaneous** labor and consumable supplies: Includes cleaning of dock and caisson not incident to docking vessels, pay of pump-well attendants, except when employed in connection with docking vessels or making repairs, i. e., cleaning and testing machinery, cleaning pump well and latrines, waste, oil, brooms, brushes.
X951	**Losses and Gratuities.**
X953	**Structures:** Repairs to body, caisson, and permanent fittings of docks, repairs to pump-well buildings, hulls of floating docks, marine-railway structures, dry-dock latrines. Includes guard rails, bollards, bearings, etc.
X954	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant of lines, trestles, staging, blocks, hauling chains, weights for inclining vessels, gratings, etc.
X955	**Plant Appliances:** Repairs to capstans, winches, and floats other than floats available for general water-front use, which are chargeable to group 026. (Repairs to dry-dock cranes are chargeable to account 0225 and tracks to account 0202.)
X956	**Machinery and Machine Tools:** Repairs to pumping plant and caisson machinery. Includes suction and discharge pipes inside and outside of pump well, pumps, valves, motors, etc.
X957	**Portable Power Tools:** Repairs, replacements and additions to plant.
X958	**Loose and Hand Tools:** Repairs, replacements, and additions to plant of loose and hand tools assigned to dry-dock use. Tools for pump well, shovels, etc.
X959	**Supervision:** Pay of dry-dock master or other supervisor.

NOTE.—Add figure 1 at end of above numbers for charges for Dry Dock No. 1, figure 2 for Dry Dock No. 2, etc.

PAINT MANUFACTURING.

X9601	**Miscellaneous** labor and consumable supplies.
X9602	**Office, Shop Store and Tool Room:** Labor and supplies.
X9603	**Fuel.**
X9604	**Direct Labor and Material.**
X961	**Losses and Gratuities.**
X963	**Buildings and Structures:** Repairs to.
X964	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X965	**Plant Appliances:** Repairs to.
X966	**Machinery and Machine Tools:** Repairs, replacements and additions to plant.
X968	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X969	**Supervision.**

FLAG MANUFACTURING (New York and Mare Island).

X9701 **Miscellaneous** labor and consumable supplies.
X9702 **Office, Shop Store and Tool Room:** Labor and supplies.
X9703 **Fuel.**
X9704 **Direct Labor and Material.**
X971 **Losses and Gratuities.**
X973 **Buildings and Structures:** Repairs to.
X974 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X975 **Plant Appliances:** Repairs to.
X976 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X978 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X979 **Supervision.**

ROPE WALK (Boston).

X9701 **Miscellaneous** labor and consumable supplies.
X9702 **Office, Shop Store and Tool Room:** Labor and supplies.
X9703 **Fuel.**
X9704 **Direct Labor and Material.**
X971 **Losses and Gratuities.**
X973 **Buildings and Structures:** Repairs to.
X974 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X975 **Plant Appliances:** Repairs to.
X976 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X978 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X979 **Supervision.**

WIRE-ROPE MILL (Boston).

X9801 **Miscellaneous** labor and consumable supplies.
X9802 **Office, Shop Store and Tool Room:** Labor and supplies.
X9803 **Fuel.**
X9804 **Direct Labor and Material.**
X981 **Losses and Gratuities.**
X983 **Buildings and Structures:** Repairs to.
X984 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X985 **Plant Appliances:** Repairs to.
X986 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X988 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X989 **Supervision.**

COFFEE ROASTER (New York).

X9801 **Miscellaneous** labor and consumable supplies.
X9802 **Office, Shop Store and Tool Room:** Labor and supplies.
X9803 **Fuel.**
X9804 **Direct Labor and Material.**
X981 **Losses and Gratuities.**
X983 **Buildings and Structures:** Repairs to.
X984 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X985 **Plant Appliances:** Repairs to.
X986 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X987 **Portable Power Tools:** Repairs, replacements, and additions to plant.
X988 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X989 **Supervision.**

TOOL MANUFACTURING (Philadelphia).

X9801 **Miscellaneous** labor and consumable supplies.
X9802 **Office, Shop Store and Tool Room:** Labor and supplies.
X9803 **Fuel.**
X9804 **Direct Labor and Material.**
X981 **Losses and Gratuities.**
X983 **Buildings and Structures:** Repairs to.
X984 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X985 **Plant Appliances:** Repairs to.
X986 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X988 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X989 **Supervision.**

CLOTHING FACTORY (New York and Charleston).

X9901 **Miscellaneous** labor and consumable supplies.
X9902 **Office, Shop Store and Tool Room:** Labor and supplies.
X9903 **Fuel.**
X9904 **Direct Labor and Material.**
X991 **Losses and Gratuities.**
X993 **Buildings and Structures:** Repairs to.
X994 **Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X995 **Plant Appliances:** Repairs to.
X996 **Machinery and Machine Tools** (including motors and shafting): Repairs to.
X998 **Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X999 **Supervision.**

CHAIN (Boston).

X9901	**Miscellaneous** labor and consumable supplies.
X9902	**Office, Shop Store and Tool Room:** Labor and supplies.
X9903	**Fuel.**
X9904	**Direct Labor and Material.**
X991	**Losses and Gratuities.**
X993	**Buildings and Structures:** Repairs to.
X994	**Miscellaneous Equipment:** Repairs, replacements, and additions to plant.
X995	**Plant Appliances:** Repairs to.
X996	**Machinery and Machine Tools** (including motors and shafting): Repairs to.
X998	**Loose and Hand Tools:** Repairs, replacements, and additions to plant.
X999	**Supervision.**

ITEMIZED PHYSICAL CLASSIFICATION, ARRANGED BY CLASSES.

Class 0.—MISCELLANEOUS LABOR AND CONSUMABLE SUPPLIES.

Alum.
Baskets, waste-paper.
Belt fastenings, lacings, and dressing.
Blades, hack-saw.
Books.
Borax.
Brooms.
Brushes.
Buckets.
Cans, garbage, refuse, and scrap.
Carbons, lamp.
Chalk.
Charcoal.
Cleaning cloths.
Cleaners, shop (labor).
Coal.
Coke.
Corn.
Currycombs.
Drafting supplies.
Drawing boards.
Emery cloth, disks, paper, and powder.
Extinguishers, fire (dry).
File handles.
Fire clay.
Flags.
Fuel.
Gas.
Globes, lamp.
Glue.
Graphite.
Gravel, foundry.
Grease.
Grenades, hand (fire).
Hack-saw blades.
Hay.
Ice.
Incandescent lamps.
Lamp shades, globes, and carbons.
Lamps, incandescent.
Loam, foundry.
Matches.
Mats, door.

Measures, liquid.
Metal polish.
Mops.
Oats.
Oil, lubricating and fuel.
Padlocks.
Pumice stone.
Resin.
Sand.
Sandpaper.
Shades, lamp.
Shears, office.
Signboards.
Skids.
Soap and cleaning gear.
Solder.
Sponges.
Squilgees.
Stamps, rubber.
Stamps, time, hand.
Stationery.
Stencils, marking.
Tee squares.
Thermometers.
Tickets, car and ferry
Type.
Waste.
Water.
Window shades.
Wood.

Class 1.—LOSSES AND GRATUITIES.

Correction of errors.
Damage and waste.
Disability.
Errors.
Holiday.
Leave.
Losses, shop-store.
Machinings, borings, turnings, etc., returned to store.

Class 2.—LAND AND APPURTENANCES.

Air-distributing system outside of buildings.
Boundary walls.
Bridges.
Drains, outside.
Distributing system, outside.
Electric distributing system, outside (including poles and fittings, subways, conduits, manholes, vaults, and cables).
Fences and walls.

Fire-alarm system, outside.
Flagstaffs (grounds).
Fuel-oil distributing system, including pipe lines and accessories from tanks to pump house and from pump house to wharfs or shops.
Heat distributing system, outside.
Hydrants.
Hydraulic distributing system, outside.
Lighting fixtures, in yard.
Meters, distributing system, outside.
Paving, asphalt, brick, macadam, and dirt.
Piers.
Piping, outside buildings.
Sea walls.
Sewer systems.
Subways.
Telegraph, telephone, and fire alarm, inside and outside buildings.
Telephone instruments.
Tracks, railroad and crane, including ties, ballast, fishplates, tie-plates, switches, frogs, rails, and paving occasioned by track repairs.
Walls, boundary.
Water systems, outside buildings.
Wiring (outside).

Class 3.—BUILDINGS AND STRUCTURES.

Air distributing system, including piping, meters, etc. (in buildings).
Body, dry dock.
Buildings.
Caissons, dry dock.
Chimneys and stacks.
Coal-handling apparatus, coaling plants, tracks.
Crane runways.
Distributing system, in buildings.
Drains, inside buildings.
Dry docks.
Dust-collecting systems.
Electric-distributing system in buildings.
Elevators.
Exhaust system.
Fire-alarm system in buildings.
Fixtures, lighting and plumbing.
Flagstaff (building).
Floors.
Foundations (buildings).
Fuel-oil tanks, yard.
Fuel oil, pump house.
Heat-distributing system, in buildings, including piping installation and accessories.
Hull, floating dock.
Hydraulic-distributing system in buildings.
Lavatories.

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Lighting fixtures in buildings.
Lighting installation in shops.
Meters, distributing system inside.
Partitioning, wood, metal, wire, etc.
Piping in buildings, air, oil, and steam.
Plumbing (in buildings).
Pump-well building.
Radiators.
Roofs.
Runways, crane.
Screens, barriers, and partitions (in buildings).
Sewers, inside buildings.
Tanks, large storage for linseed oil, turpentine, and alcohol.
Tracks (in buildings, including crane runways, and at coaling plants).
Ventilating systems.
Water systems (in buildings).
Wiring (inside buildings).

Class 4.—MISCELLANEOUS EQUIPMENT.

Anvils.
Awnings.
Barrows, wheel.
Benches, work.
Bending slabs.
Bins.
Blankets, horse.
Blocks, chain.
Blocks and falls, rope.
Blocks, keel.
Bolsters (bedding).
Bookcases.
Boxes, tool.
Boxes (tote).
Cabinets, filing.
Cameras.
Cargo lights.
Carts, hand.
Cars, coaling plants.
Chains, hauling, dry dock.
Chain slings.
Chairs.
Check perforators.
Chest, tool.
Clocks, office and time.
Coal-handling apparatus, coaling plants, cars.
Coal-handling apparatus, coaling plants, miscellaneous.
Coin sorters.
Copying apparatus.
Cranes, jib.
Cranes, small, portable.

Crucibles.
Cupboards, tool.
Desks, office and shop.
Dies, drop forging, stamping (standard).
Drawing cases.
Drawing tables.
Drawings (standard).
Duplicators.
Extinguishers, fire (wet).
Erecting platforms.
Fans, electric.
Filing equipment.
Fire-fighting apparatus (extinguishers and fire hose in offices and shops, hose carts and reels).
Floor covering.
Furniture, quarters, shops, offices, power plants.
Gangways.
Gangway brows.
Hand carts.
Harness.
Hoists, chain, pneumatic and hand.
Horses, steel and wood.
Hose, fire.
Household furniture.
Jacks, hydraulic.
Jigs (standard).
Kettles, bitumastic.
Ladders.
Ladles, foundry.
Lanterns, hand.
Lamps, portable.
Letter opening and sealing machines.
Lighting outfits for ships.
Lines.
Lockers, clothes.
Matting, floor.
Melting pots, foundry.
Molds (standard).
Molds, ingot, foundry.
Numbering machines.
Neostyles.
Oil extractors.
Oil stoves (portable).
Paint kettles, iron.
Patterns, standard.
Pickling vats.
Plows.
Racks, hat, coat, tool, and plate.
Regulators, acetylene.
Robes, carriage.
Rugs.

Scales, platform, counter and crane.
Scrapers (drag).
Scrapers (wheel).
Shelving.
Spraying outfits.
Spur shores.
Stacking machines.
Stamps, time.
Stands, hat, coat, and umbrella.
Stands, work and tool.
Stencil cutters.
Stepladders.
Stools.
Surface tables.
Surveying instruments.
Tables.
Tanks, acid, pitch, water, etc.
Templates (standard).
Tents.
Time clock systems.
Time recorders and racks.
Tinning tanks.
Tool boxes.
Tool cupboards.
Transporters, gravity carriers.
Trestles, work.
Trucks, hand.
Vacuum cleaners.
Wardrobes.
Watchman's telltales.
Weights for inclining vessels.

Class 5.—PLANT APPLIANCES.

[Equipment not specifically designated under class 5 by the Bureau of S. and A. is chargeable to class 4.]

Adding machines.
Addressographs.
Ash-handling apparatus.
Barges, coal.
Bicycles.
Blue-printing machines.
Boilers, power plant, including fittings, foundations, settings, furnaces, and superheaters.
Boilers, yard.
Calculating machines.
Capstans, dry dock.
Carriages.
Cars, railroad, flat, and coal.
Carts, dump.
Coal-handling apparatus, power plants.
Comptometers.
Cranes, floating.

Cranes, locomotive.
Cranes, shop, traveling.
Cranes, stationary in yard.
Derricks, floating, movable or stationary.
Dictating machines.
Diving outfits.
Draft equipment, mechanical.
Economizers.
Ferryboats.
Fire engines.
Floats.
Foundations, boiler.
Furnaces, power plants.
Heaters, water.
Horses.
Landing stages.
Launches.
Lighters, ash and garbage.
Live stock.
Locomotives.
Locomotive cranes.
Motor cycles.
Meters, power plants.
Oil-burning apparatus (power plant).
Oil-handling apparatus (power plant).
Photographing machines.
Photo printing machines.
Pile drivers.
Piping, power plant.
Pumps, power plant.
Radio outfits.
Rolling stock.
Safes.
Scales, wagon and railroad.
Scows.
Shearlegs.
Sleighs.
Sprinkling carts.
Street-sweeping machines.
Stokers, mechanical.
Switchboards.
Targets and outfits.
Testing tables.
Trucks, motor.
Trucks, shop, electric.
Tugs.
Typewriters.
Vehicles.
Wagons.
Winches.
Yard craft.

Class 6.—MACHINERY AND MACHINE TOOLS.

Air compressors.
Arbor presses.
Attachments for machine tools: Planer centers and chucks; shaper vises or chucks; milling-machine vises, plain, swivel, and universal; taper attachments, index heads, cam and gear-cutting attachments, boring and rifling bars, steady rests (heavy duty), etc. (to be classified as a part of the machine tool concerned when practicable).
Automatic screw machines.
Bake ovens (foundry).
Belting, canvas, leather, and rawhide (to be charged to first cost of machine concerned; charge renewals to Title G).
Belt-lacing machines.
Bending rolls.
Blowers, not portable.
Bolt and nut machinery.
Boosters.
Boring mills, horizontal and vertical.
Boxes, steam.
Cam-cutting machines.
Carving machines.
Centering machines.
Concrete mixers.
Converters.
Core ovens.
Countershaft, including hangers (to be classified as a part of the machine tool concerned).
Coal-handling apparatus, coaling plants, motors.
Coils, heating for dry kilns.
Cupolas, foundry.
Cutting-off machines.
Drilling machines, multi-spindle, radial, sensitive, and vertical.
Emery grinders.
Engines, stationary.
Engraving machines.
Exciters.
Flanging machines.
Forges, smith, in shops.
Forging machines.
Forming machines (rope).
Foundations, machine.
Fuel-oil pumping machinery.
Furnaces, annealing, hardening, and tempering.
Gear-cutting machines.
Generators.
Grinders, drill, saw, universal, wet tool and surface.
Grindstones.
Guards, machinery.
Hammers, drop and steam.
Hangers, shafting.

Hot wells.
Jackshafts, including hangers and pulleys.
Key seating machine.
Kiln, timber and foundry.
Lathes, bench, precision, boring and facing, brass finishers, capstan, crankshaft, pulley, shaving, turret (horizontal and vertical) and wood working.
Laying machines (rope).
Machine tools.
Metal brake (power drive).
Milling machines, horizontal, vertical, slot and universal.
Molding machines.
Mortise machines.
Motors.
Oil burners, for forges.
Oil heaters.
Paint mills.
Pipe bending machines (heavy duty, power drive).
Pipe cutting and screwing machine.
Planers, parallel and rotary.
Plate bending and straightening machines.
Pots, galvanizing.
Presses, hydraulic and pneumatic.
Presses, arbor, straightening, portable.
Profiling machines.
Printing presses.
Pulleys, shafting.
Polishing machines.
Pump well machinery.
Pumps, dry dock.
Pumps, fuel oil tanks.
Punching and shearing machines.
Punch press.
Riveting machines, fixed.
Rope machines fiber and wire.
Sand papering machines.
Sawing machines (metal and wood) band, circular, hack and jig.
Saw sharpening and gumming machines.
Sewing machines.
Shafting, main, including hangers and pulleys (one card required for total main line shafting in each building).
Shapers.
Shearing machines.
Sheet metal working machinery (power drive).
Slotting machines.
Spinning machine, rope.
Steam boxes.
Steam traps.
Straightening rolls.
Tachometers.
Tanks, electroplating.

Testing machines.
Threading machines.
Tools, machine.
Transformers.
Turbines.
Valves, dry-dock.
Welding machines, electric.
Woodworking machines.

Class 7.—PORTABLE POWER TOOLS

Blowers, portable.
Boring bars.
Drills, electric and pneumatic.
Forges, rivet, portable.
Hammers, pneumatic.
Hose, air, steam, and gas.
Power tools, portable.
Pumps, portable.
Riddles, power driven.
Riveting machines (portable).
Sand blast apparatus.
Tools, air.
Torches, gasoline.
Torches, hand.
Torches, hand, blow.

Class 8.—LOOSE AND HAND TOOLS.

Ammeters.
Belt cutters.
Bolt cutters, hand.
Calipers.
Calking tools.
Cans, squirt.
Center drills.
Centering punches.
Chisels.
Chucks (in tool room).
Counter bores.
Crease irons.
Crowbars.
Cutters, milling, lathe.
Cutting tools for machines, portable power, or hand tools.
Devil claws.
Dies, thread cutting.
Dividers.
Drawing instruments.
Drifts.
Drill braces, breast or ratchet.
Drills, flat and twist, for machine, portable power, or hand tool.

Emery wheels for emery grinders.
Files and rasps.
Folders, tin, etc., hand.
Folding machines (hand).
Funnels.
Gauges, caliper and snap, cylindrical, depth and height, length, thread, wire, and sheet.
Goggles.
Grinding wheel dressers.
Grinding wheels for grinding machines.
Hacksaw frames.
Hand tools, loose and.
Hammers, copper, lead, hand, and sledge.
Helmets.
Holder-ons, hand.
Holding devices for work; Clamps, bent, C, U and finger; T bolts, toe dogs, V blocks; parallel and taper strips; dogs, angle plates, planer jacks, iron and copper wedges; steady and follower rests, arbors, mandrels, etc.
Indicators, measuring.
Jacks, screw, in tool room.
Lawn mowers, hand.
Levels.
Loose and hand tools.
Machining tools (for machine, portable power, or hand tools).
Mallets.
Measuring instruments.
Melting pots.
Micrometers.
Milling cutters.
Nail pullers.
Necking tools.
Nippers, wire.
Oil cans.
Oil pans.
Oilstones.
Picks.
Pipe cutters, hand.
Pipe bending machines (light duty, hand).
Pincers.
Pipe wrenches.
Planer tools.
Pliers, wire.
Plumb bobs.
Portables, electric.
Protractors.
Punches, hand.
Pyrometers.
Rakes.
Rammers, hand.
Reamers (for machine, portable power, and hand tools).

Riddles, hand.
Rules, standard and contraction.
Saws, hand, panel, keyhole, hack.
Saws, for machine tools (band and circular
Scrapers, hand.
Screw drivers.
Screw plates (in tool room
Shears, hand, tinsmith, etc
Shovels.
Sieves.
Slide rules.
Soldering irons.
Spanners, adjustable and pla
Squares.
Stamps, letter and figure.
Stocks and dies.
Straight edges.
Stud extractors and fixers.
Surface plates.
Swages.
Tapes, measuring.
Taps.
Tap wrenches.
Threading tools, hand.
Tools, hand (all trades).
Tongs.
Trammels.
Trimmers, hand.
Tube cleaners.
Verniers.
Viscosimeters.
Vises, bench.
Voltmeters.
Wrenches, all kinds.

Class 9.—SUPERVISION.

Pay of general supervisors.
Wages, foremen, quartermen, and leadingmen.

NOT CHARGEABLE TO PLANT OR EXPENSE ACCOUNTS—CHARGE DIRECT TO WORK.

Dies, drop forging and stamping (nonstandard).
Drawings (nonstandard).
Jigs (nonstandard).
Molds (nonstandard).
Patterns (nonstandard).
Templates (nonstandard).

ALPHABETICAL INDEX TO PHYSICAL CLASSIFICATION.

	Physical class.
Adding machines	5
Addressographs	5
Air compressors	6
Air-distributing system, including piping, meters, etc. (in buildings)	3
Air-distributing system outside of buildings	2
Alum	0
Ammeters	8
Anvils	4
Arbor presses	6
Ash-handling apparatus	5
Attachments for machine tools: Planer centers and chucks, shaper vises or chucks; milling-machine vises, plain, swivel, and universal; taper attachments, index heads, cam and gear-cutting attachments, boring and rifling bars, steady rests (heavy duty), etc. (to be classified as a part of the machine tool concerned when practicable)	6
Automatic screw machines	6
Awnings	4
Bake ovens (foundry)	6
Barges, coal	5
Barrows, wheel	4
Baskets, waste paper	0
Belting, canvas, leather, and rawhide (to be charged to first cost of machine concerned; charge renewals to Title G)	6
Belt cutters	8
Belt fastenings, lacings, and dressing	0
Belt-lacing machines	6
Benches, work	4
Bending rolls	6
Bending slabs	4
Bicycles	5
Bins	4
Blades, hack-saw	0
Blankets, horse	4
Blocks and falls, rope	4
Blocks, chain	4
Blocks, keel	4
Blowers, portable	7
Blowers, not portable	6
Blue-printing machines	5
Body, dry dock	3
Boilers, power plant (including fittings, foundations, settings, furnaces, and superheaters)	5

	Physical class.
Boilers, yard	5
Bookcases	4
Bolsters, bedding	4
Bolt and nut machinery	6
Bolt cutters, hand	8
Books	0
Boosters	6
Borax	0
Boring bars	7
Boring mills, horizontal and vertical	6
Boundary walls	2
Boxes, steam	6
Boxes, tool	4
Boxes, tote	4
Brooms	0
Bridges	2
Brushes	0
Buckets	0
Buildings	3
Cabinets, filing	4
Caissons, dry dock	3
Calculating machines	5
Calipers	8
Cam-cutting machines	6
Cameras	4
Cans, garbage, refuse, and scrap	0
Cans, squirt	8
Capstans, dry dock	5
Carbons, lamp	0
Cargo lights	4
Carriages	5
Cars, railroad, flat, and coal	5
Cars, coaling plants	4
Carts, dump	5
Carts, hand	4
Carving machines	6
Calking tools	8
Center drills	8
Centering machines	6
Centering punches	8
Chains, hauling, dry dock	4
Chain slings	4
Chairs	4
Chalk	0
Charcoal	0
Check perforators	4
Chest, tool	4
Chimneys and stacks	3

	Physical class.
Chisels	8
Chucks (in tool room)	8
Cleaning cloths	0
Cleaners, shop (labor)	0
Clocks, office and time	4
Coal	0
Coal-handling apparatus, power plants	5
Coal-handling apparatus, coaling plants, cars	4
Coal-handling apparatus, coaling plants, motors	6
Coal-handling apparatus, coaling plants, tracks	3
Coal-handling apparatus, coaling plants, miscellaneous	4
Coils, heating, for dry kilns	6
Coin sorters	4
Coke	0
Comptometers	5
Concrete mixers	6
Converters	6
Copying apparatus	4
Core ovens	6
Corn	0
Correction of errors	1
Counterbores	8
Countershaft, including hangers (to be classified as a part of the machine tool concerned)	6
Crane runways	3
Cranes, floating	5
Cranes, jib	4
Cranes, locomotive	5
Cranes, shop, traveling	5
Cranes, small, portable	4
Cranes, stationary, in yard	5
Crease irons	8
Crowbars	8
Crucibles	4
Cupboards, tool	4
Cupolas, foundry	6
Currycombs	0
Cutters, milling, lathe	8
Cutting-off machines	6
Cutting tools for machines, portable power or hand tools	8
Damage and waste	1
Derricks, floating, movable or stationary	5
Desks, offices and shops	4
Devil's-claws	8
Dictating machines	5
Dies, drop forging, stamping (standard)	4
Dies, drop forging, stamping (nonstandard) (charge direct to work)	
Dies, thread cutting	8
Disability	1

	Physical class.
Distributing systems, in buildings	3
Distributing systems, outside	2
Dividers	8
Diving outfits	5
Draft equipment, mechanical	5
Drafting supplies	0
Drains, inside buildings	3
Drains, outside buildings	2
Drawing boards	0
Drawing cases	4
Drawing instruments	8
Drawing tables	4
Drawings (standard)	4
Drawings (nonstandard) (charge direct to work).	
Drifts	8
Drill braces, breast or ratchet	8
Drilling machines, multi-spindle, radial, sensitive, and vertical	6
Drills, electric and pneumatic	7
Drills, flat and twist, for machine, portable power, or hand tools	8
Dry docks	3
Duplicators	4
Dust-collecting systems	3
Economizers	5
Electric-distributing system in buildings	3
Electric-distributing system outside (including poles and fittings, subways, conduits, manholes, vaults, and cables)	2
Elevators	3
Emery cloth, disks, paper, and powder	0
Emery grinders	6
Emery wheels (for emery grinders)	8
Engines, stationary	6
Engraving machines	6
Erecting platforms	4
Errors	1
Exciters	6
Exhaust systems	3
Extinguishers, fire (wet)	4
Extinguishers, fire (dry)	0
Fans, electric	4
Fences and walls	2
Ferryboats	5
File handles	0
Files and rasps	8
Filing equipment	4
Fire-alarm system, outside	2
Fire-alarm system, in buildings	3
Fire clay	0
Fire-fighting apparatus (extinguishers and fire hose in offices and shops, hose carts, and reels)	4

	Physical class.
Fire engines	5
Fixtures, lighting and plumbing	3
Flags	0
Flagstaff (grounds)	2
Flagstaff (buildings)	3
Flanging machines	6
Floats	5
Floors	3
Floor coverings	4
Folders, tin, etc., hand	8
Folding machines, hand	8
Forges, rivet, portable	7
Forges, smith (in shop)	6
Forging machines	6
Foundations, boiler	5
Foundations, building	3
Foundations, machine	6
Fuel	0
Fuel-oil distributing system, including pipe lines and accessories from tanks to pump house and from pump house to wharves or shops	2
Fuel-oil pump house	3
Fuel-oil pumping machinery	6
Fuel-oil tanks, yard	3
Funnels	8
Furnaces, annealing, hardening, and tempering	6
Furnaces, power plant	5
Furniture, quarters, shops, offices, power plants	4
Gangways	4
Gangway brows	4
Gas	0
Gauges, caliper and snap, cylindrical, depth and height, length, thread, wire, and sheet	8
Gear-cutting machines, milling and planing	6
Generators	6
Globes, lamp	0
Glue	0
Goggles	8
Graphite	0
Gravel, foundry	0
Grease	0
Grenades, hand (fire)	0
Grinders, drill, saw, universal, wet tool, and surface	6
Grinding-wheel dressers	8
Grinding wheels (for grinding machines)	8
Grindstones	6
Guards, machinery	6
Hack-saw blades	0
Hack-saw frames	8

	Physical class.
Distributing systems, in buildings	3
Distributing systems, outside	2
Dividers	8
Diving outfits	5
Draft equipment, mechanical	5
Drafting supplies	0
Drains, inside buildings	3
Drains, outside buildings	2
Drawing boards	0
Drawing cases	4
Drawing instruments	8
Drawing tables	4
Drawings (standard)	4
Drawings (nonstandard) (charge direct to work).	
Drifts	8
Drill braces, breast or ratchet	8
Drilling machines, multi-spindle, radial, sensitive, and vertical	6
Drills, electric and pneumatic	7
Drills, flat and twist, for machine, portable power, or hand tools	8
Dry docks	3
Duplicators	4
Dust-collecting systems	3
Economizers	5
Electric-distributing system in buildings	3
Electric-distributing system outside (including poles and fittings, subways, conduits, manholes, vaults, and cables)	2
Elevators	3
Emery cloth, disks, paper, and powder	0
Emery grinders	6
Emery wheels (for emery grinders)	8
Engines, stationary	6
Engraving machines	6
Erecting platforms	4
Errors	1
Exciters	6
Exhaust systems	3
Extinguishers, fire (wet)	4
Extinguishers, fire (dry)	0
Fans, electric	4
Fences and walls	2
Ferryboats	5
File handles	0
Files and rasps	8
Filing equipment	4
Fire-alarm system, outside	2
Fire-alarm system, in buildings	3
Fire clay	0
Fire-fighting apparatus (extinguishers and fire hose in offices and shops, hose carts, and reels)	4

	Physical class.
Fire engines	5
Fixtures, lighting and plumbing	3
Flags	0
Flagstaff (grounds)	2
Flagstaff (buildings)	3
Flanging machines	6
Floats	5
Floors	3
Floor coverings	4
Folders, tin, etc., hand	8
Folding machines, hand	8
Forges, rivet, portable	7
Forges, smith (in shop)	6
Forging machines	6
Foundations, boiler	5
Foundations, building	3
Foundations, machine	6
Fuel	0
Fuel-oil distributing system, including pipe lines and accessories from tanks to pump house and from pump house to wharves or shops	2
Fuel-oil pump house	3
Fuel-oil pumping machinery	6
Fuel-oil tanks, yard	3
Funnels	8
Furnaces, annealing, hardening, and tempering	6
Furnaces, power plant	5
Furniture, quarters, shops, offices, power plants	4
Gangways	4
Gangway brows	4
Gas	0
Gauges, caliper and snap, cylindrical, depth and height, length, thread, wire, and sheet	8
Gear-cutting machines, milling and planing	6
Generators	6
Globes, lamp	0
Glue	0
Goggles	8
Graphite	0
Gravel, foundry	0
Grease	0
Grenades, hand (fire)	0
Grinders, drill, saw, universal, wet tool, and surface	6
Grinding-wheel dressers	8
Grinding wheels (for grinding machines)	8
Grindstones	6
Guards, machinery	6
Hack-saw blades	0
Hack-saw frames	8

	Physical class.
Hammers, copper, lead, hand, and sledge	8
Hammers, drop and steam	6
Hammers, pneumatic	7
Handcarts	4
Hand tools, loose and	8
Hangers, shafting	6
Harness	4
Hay	0
Heat-distributing system, in buildings, including piping, installation, and accessories	3
Heat-distributing system, outside of buildings	2
Heaters, water	5
Helmets	8
Hoes	8
Hoists, chain, pneumatic, and hand	4
Holderons, hand	8
Holding devices for work: Clamps, bent, C, U, and finger; T bolts, toe dogs, V blocks; parallel and taper strips; dogs, angle plates, planer jacks, iron and copper wedges; steady and follower rests, arbors, mandrels, etc	8
Holiday	1
Horses	5
Horses, steel and wood	4
Hose, air, steam, and gas	7
Hose, fire	4
Hot wells	6
Hull, floating docks	3
Household furniture	4
Hydrants	2
Hydraulic distributing system, in buildings	3
Hydraulic distributing system, outside	2
Ice	0
Incandescent lamps	0
Indicators, measuring	8
Jackshafts, including hangers and pulleys	6
Jacks, hydraulic	4
Jacks, screw (in tool room)	8
Jigs (nonstandard) (charge direct to work).	
Jigs (standard)	4
Kettles, bitumastic	4
Key-seating machine	6
Kilns, timber and foundry	6
Ladders	4
Ladles, foundry	4
Lanterns, hand	4
Lamp shades, globes, and carbons	0
Lamps, incandescent	0
Lamps, portable	4
Landing stages	5

	Physical class.
Launches	5
Lathes, bench, precision, boring and facing, brass finishers, capstan, crankshaft, pulley, shaving, turret (horizontal and vertical) and woodworking	6
Lavatories	3
Lawn mowers, hand	8
Laying machines (rope)	6
Leave	1
Letter opening and sealing machines	4
Levels	8
Lighters, ash and garbage	5
Lighting fixtures (in buildings)	3
Lighting installation (in shops)	3
Lighting fixtures (in yard)	2
Lighting outfits for ships	4
Lines	4
Live stock	5
Loam, foundry	0
Lockers, clothes	4
Locomotive cranes	5
Locomotives	5
Loose and hand tools	8
Losses, shop store	1
Machine tools	6
Machining tools (for machine, portable power, or hand tools)	8
Mallets	8
Matches	0
Mats, door	0
Matting, floor	4
Measuring instruments	8
Measures, liquid	0
Melting pots	8
Melting pots, foundry	4
Metal brake (power drive)	6
Metal polish	0
Meters, distributing systems, inside	3
Meters, distributing systems, outside	2
Meters, power plant	5
Micrometers	8
Milling cutters	8
Milling machines, horizontal, vertical, slot, and universal	6
Molding machines	6
Molds, ingot, foundry	4
Molds (standard)	4
Molds (nonstandard). (Charge direct to work).	
Mops	0
Mortise machine	6
Motor cycles	5
Motors	

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	Physical class.
Nail pullers	8
Nippers, wire	8
Numbering machines	4
Necking tools	8
Neostyles	4
Oats	0
Oil-burning apparatus, power plant	5
Oil burners for forges	6
Oil-handling apparatus, power plant	5
Oil heaters	6
Oil cans	8
Oil pans	8
Oil extractors	4
Oil, lubricating and fuel	0
Oilstones	8
Oil stoves (portable)	4
Padlocks	0
Paint kettles, iron	4
Paint mills	6
Partitioning, wood, metal, wire, etc	3
Patterns (standard)	4
Patterns (nonstandard). (Charge direct to work.)	
Paving, asphalt, brick, macadam, and dirt	2
Photographing machines	5
Photoprinting machines	5
Pickling vats	4
Picks	8
Piers	2
Pile drivers	5
Pincers	8
Pipe-bending machine (heavy duty, power drive)	6
Pipe-bending machine (light duty, hand)	8
Pipe cutters, hand	8
Pipe cutting and threading machine	6
Pipe wrenches	8
Piping in buildings, air, oil, steam, and water	3
Piping, outside buildings	2
Piping, power plant	5
Planers, parallel and rotary	6
Planer tools	8
Plate bending and straightening machines	6
Pliers, wire	8
Plows	4
Plumb bobs	8
Plumbing (in buildings)	3
Polishing machines	6
Portables, electric	8
Pots, galvanizing	6
Power tools, portable	7

	Physical class.
Presses, arbor, straightening, portable	6
Presses, hydraulic and pneumatic	6
Printing presses	6
Profiling machines	6
Protractors	8
Pulleys, shafting	6
Pumice stone	0
Pump-well building	3
Pump-well machinery	6
Pumps, dry dock	6
Pumps, power plant	5
Pumps, fuel-oil tanks	6
Pumps, portable	7
Punches, hand	8
Punching and shearing machines	6
Punch press	6
Pyrometers	8
Racks, hat, coat, and tool	4
Radiators	3
Radio outfits	5
Racks, plate	4
Rakes	8
Rammers, hand	8
Reamers (for machine, portable power, or hand tools)	8
Regulators, acetylene	4
Resin	0
Riddles, power-drive	7
Riddles, hand	8
Riveting machines, fixed	6
Riveting machines, portable	7
Robes, carriage	4
Rolling stock	5
Rope machinery, fiber and wire	6
Roofs	3
Rugs	4
Runways, crane	3
Rules, standard and contraction	8
Safes	5
Sand	0
Sand-blast apparatus	7
Sandpaper	0
Sandpapering machines	6
Saws, hand, panel, keyhole, hack	8
Saws for machine tools (band and circular)	8
Sawing machines (metal and wood), band, circular, hack, and jig	6
Saw sharpening and gumming machines	6
Scales, platform, counter, and crane	4

	Physical class.
Scales, wagon and railroad	5
Scows	5
Scrapers, hand	8
Scrapers, drag	4
Scrapers, wheel	4
Screens, barriers, and partitions (in buildings)	3
Screw drivers	8
Screw plates (in tool room)	8
Sea walls	2
Sewers, inside buildings	3
Sewer system	2
Sewing machines	6
Shades, lamp	0
Shafting, main, including hangers and pulleys (one card required for total main-line shafting in each building)	6
Shapers	6
Shearing machines	6
Shear legs	5
Shears, hand, tinsmith, etc	8
Shears, office	0
Sheet metal working machinery	6
Shelving	4
Shovels	8
Sieves	8
Skids	0
Sleighs	5
Slotting machines	6
Slide rules	8
Soap and cleaning gear	0
Solder	0
Soldering irons	8
Spanners, adjustable and plain	8
Spinning machines (rope)	6
Sponges	0
Spraying outfits	4
Sprinkling carts	5
Spur shores	4
Squares	8
Squilgees	0
Stacking machines	4
Stamps, letter and figure	8
Stamps, rubber	0
Stamps, time	4
Stamps, time, hand	0
Stands, hat, coat, and umbrella	4
Stands, work and tool	4
Stationery	0
Steam boxes	6
Steam traps	6

	Physical class.
Stencils, marking	0
Stencil cutters	4
Stepladders	4
Stocks and dies	8
Stokers, mechanical	5
Stools	4
Straight edges	8
Straightening rolls	6
Street-sweeping machines	5
Stud extractors and fixers	8
Subways	2
Superintendence and supervision	9
Surface plates	8
Surface tables	4
Surveying instruments	4
Swages	8
Switchboards	5
Tables	4
Tachometers	6
Tanks, large, storage, for linseed oil, turpentine, and alcohol	3
Tanks, electroplating	6
Tanks, acid, pitch, water, etc	4
Tapes, measuring	8
Taps	8
Tap wrenches	8
Targets and outfits	5
Tee squares	0
Telephone, telegraph, and fire alarm (inside and outside buildings)	2
Telephones, instruments	2
Templates (standard)	4
Templates (nonstandard). (Charge direct to work.)	
Tents	4
Testing machines	6
Testing tables	5
Thermometers	0
Threading machine	6
Threading tools, hand	8
Tickets, car and ferry	0
Time-clock systems	4
Time recorders and racks	4
Tinning tanks	4
Tool boxes	4
Tool cupboards	4
Tools, air	7
Tools, loose and hand (all trades)	8
Tools, machine	6
Tongs	8
Torches, gasoline	7
Torches, hand	7

	Physical class.
Torches, hand blow	7
Trimmers, hand	8
Tracks (in buildings, including crane runways, and at coaling plants)	3
Tracks, railroad and crane, including ties, ballast, fishplates, tie-plates, switches, frogs, rails, and paving occasioned by track repairs	2
Trammels	8
Transformers	6
Transporters (gravity carriers)	4
Trestles (work)	4
Trucks, hand	4
Trucks, motor	5
Trucks, shop, electric	5
Tube cleaners	8
Tugs	5
Turbines	6
Type	0
Typewriters	5
Vacuum cleaners	4
Valves, dry dock	6
Vehicles	5
Verniers	8
Viscosimeters	8
Vises, bench	8
Ventilating systems	3
Voltmeters	8
Wages, foremen, quartermen, and leadingmen	9
Wagons	5
Walls, boundary	2
Wardrobes	4
Waste	0
Watchman's telltales	4
Water	0
Water system (in buildings)	3
Water system (outside buildings)	2
Weights for inclining vessels	4
Welding machines, electric	6
Winches	5
Window shades	0
Wiring (inside buildings)	3
Wiring (outside buildings)	2
Wood	0
Wood-working machines	6
Wrenches, all kinds	8
Yard craft	5

INDUSTRIAL ACCOUNTING INSTRUCTIONS.

[Effective at Navy Yards, Portsmouth, Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Mare Island, and Puget Sound and Naval Stations, Olongapo and Cavite.]

GENERAL DESCRIPTION OF SYSTEM.

PURPOSE.

1. The purpose of the industrial accounting system is to furnish Congress and departmental and local executives with prompt and accurate information of costs and appropriation charges.

FUNCTIONS.

2. The industrial accounting system is a branch of the general system of naval statistical accounting and as such has two main functions, viz:

(*a*) Cost accounting, or the recording and reporting of charges by purposes, i. e., under the titles and classification of objects prescribed by the Navy Department, and, for all output work of the plant, by jobs or other units. Incident to the computation of costs of production is the determination of the method and amount of the distribution of plant maintenance charges to output as the indirect element of its cost.

(*b*) Appropriation accounting, or the recording and reporting of expenditures according to their legal authorizations or source, i. e., under the appropriations prescribed by Congress.

ADMINISTRATION.

3. "Under the direction of the commandant, and in accordance with instructions issued by the department, the accounting officer of the yard shall keep the accounts of all manufacturing and operating expense thereat, which shall include an exact account under each department or division of all material and labor expended upon each job order, from which he shall prepare such reports of all expenditure under each bureau as may be required by the Navy Department. He shall furnish monthly, or as the commandant may direct, to the heads of the yard departments and divisions a statement of expenditures under their departments and divisions. He shall notify the head of any department or division when any allotment of funds for expenditure under the direction of such officer shall be so depleted that it will

probably be exhausted before the end of the current month. He shall, when so requested by a head of a department or division, furnish the latter a statement of the cost to date of any outstanding job order; and when a job is completed he shall, as soon thereafter as practicable, furnish the head of department or division concerned a detailed statement of the cost of labor and material and the indirect charges entering into such job. He shall prepare all pay rolls, except those under the cognizance of the Bureau of Medicine and Surgery." (N. R. 4001.)

SERVICE.

4. As the usefulness of the accounting system depends on its effectiveness as an information service, the quality and promptness of the service rendered are to be regarded as the essentials in accounting administration.

5. The quality of the appropriation service rests on general scrutiny of the legality of charges and on accurate bookkeeping. The quality of the cost service, while depending to some extent on accurate bookkeeping and to a larger extent on scrutiny of charges, rests mainly on soundness of practice in the determination of costs. While it is impossible that any system of determining indirect costs be mathematically accurate, study of methods and recommendations based thereon looking to their improvement are among the most important duties of an accounting officer.

6. It is essential that promptness in rendering routine reports be supplemented by efficient response to special inquiries, in order that the other departments of the yard may be encouraged to make the fullest possible use of the information lodged in the accounting department. Wherever there is a demand for current costs by jobs or process costs by smaller units of work, every effort should be made to respond to it promptly.

SEPARATION OF COSTS FROM APPROPRIATIONS.

7. The major part of the output or production of navy yards is authorized under the appropriations Increase of the Navy, Construction and Repair of Vessels, Engineering, Ordnance and Ordnance Stores. The major part of the maintenance expense of navy yards is authorized under Pay of the Navy, Maintenance, Yards and Docks, Repairs and Preservation and Maintenance, Supplies and Accounts, with miscellaneous authorizations under the output appropriations.

8. Every item of output of a Government plant contains elements of value contributed by several appropriations. These elements are similar to those entering into the product of a commercial plant, being the "direct" labor and material—i. e., that which entered directly into the article or job—and the "indirect" labor and material; i. e., such (estimated) part of the plant expense for shop supervision, for repairs to buildings, equipment and tools, and for maintaining and operating the general offices, the transportation system, the supply department, the power plant, etc., as aided in producing the article. All or a portion of this plant expense actually contributes to production as a whole, but that part assignable to the production of any specific article or job is the *indirect* cost of the job, as distinguished from the labor and material *directly* and tangibly applied to it.

9. In those Government plants where it is not attempted to show all the elements of value in the cost price of the output, such as at certain nonindustrial naval stations, the elements actually shown in the price or stated cost of the article (for example, a new vessel) are identical with the direct productive labor and material properly chargeable to the output appropriation under which the work was authorized. Although a part of the general yard expense actually contributes to the construction of the vessel it does not go into the accounts of the Navy as part of the cost of new ships, but merely as part of the cost of shore station maintenance. The direct labor and material is charged to Increase of the Navy as New Construction, Title A. The indirect labor and material is charged to Maintenance, Supplies and Accounts, Maintenance, Yards and Docks, etc., as Station Maintenance, Title S. In other words, under such a system cost accounting follows the lines of appropriation accounting and is inadequate.

10. Adequate industrial cost accounting requires, for the purpose of control, that all plant expense first be classified in a set of maintenance accounts such as "Supervision, Repairs to Buildings, Equipment and Tools, Power Plant, Transportation System, Supply Department, etc., and, for the purpose of price fixing, that all or a portion of the same plant maintenance be also distributed to output and included in the cost of new ships, public works, manufactured articles, and repairs to ships.

11. That the requirements of the law as regards the proper appropriation charge for the various items of yard maintenance offer no obstacle in themselves to the development of a proper navy yard cost system, as defined in the preceding paragraph, has not been generally known.

12. The first industrial yard cost system (1910 to 1915)—i. e., the first system to attempt systematically to show indirect costs of output—was based on the assumption that cost accounting could not be separated from appropriation accounting. No part of the pay of officers, maintenance of supply departments, etc., was shown in the cost of output for the reason that it was assumed that if so shown it would necessarily be charged to the output appropriation in contravention of the law, which specifically provides for these items under Pay Navy, Maintenance, Supplies and Accounts, etc. The indirect cost of output was therefore arbitrarily restricted to certain maintenance items which it had been the custom to charge to output appropriations on account of shortage of funds under maintenance appropriations or on account of the fact that certain output appropriations contain provisions of a maintenance nature. The determination of the indirect cost charge was therefore subject to appropriation considerations, and the determination of the appropriation charge for maintenance was subject to cost considerations. This system of determining appropriation charges and costs by a common method was manifestly unsatisfactory and was abolished June 30, 1915.

13. Under the present industrial yard cost system the appropriation charges for yard maintenance are made to the maintenance accounts, Title G, either directly, in accordance with specific provisions of the appropriation acts or on a prorated basis, in accordance with a general provision of the appropriation act of June 30, 1914.

14. The fundamental principle of the accounting system, as embracing both appropriation accounting and cost accounting, is that these appropriation charges for maintenance are entirely separate and distinct from the estimated indirect cost charges which appear in the invoice prices of output but which are not charged to the appropriation under which the productive job is authorized. There is thus absolute freedom to determine the amount of the indirect charge to output solely on cost considerations, without reference to the appropriation acts.

15. Appropriation charges under Title G consist of labor and material. The appropriation *reports* under Title A, etc., show labor, *indirect*, and material, for the reason that it is desirable to show the *value* of the various items of output under the appropriation and that it is convenient to assemble the *cost* charges at the same time and on the same returns as the appropriation charges. The indirect cost charges are deducted from the total appropriation charge to avoid the duplication which would result from charging maintenance both under Title G and Title A. The actual *appropriation* charges for Title A work are thus merely labor and material, as in the case of Title G.

16. The deductions necessary in order to arrive at the correct net charge, when both the total cost of output and the total cost of yard maintenance are shown in the same set of figures, are as follows: In the case of appropriations, as stated in the preceding paragraph, the correct charge is obtained by deducting from the total amount shown under all titles the amount of the indirect cost charge to productive titles (see statement No. 40 of Paymaster General's annual report, 1916); in cost statements (such as total cost of the Navy as shown in statement 1 of the Paymaster General's annual report) the deduction of the amount of the indirect cost charge is made from the maintenance titles in order that the stated value of ships, etc., may be identical in all naval records.

17. Appropriation charges show the source or legal authorization for the expenditure of the various sums of money devoted to output and maintenance. Cost charges show the disposition of the money, the final resting place of values. The two classifications are independent and can not be made identical without impairing the legality of one or the correctness and administrative value of the other. The cost of an item of output can not be correctly determined except by taking into consideration the elements thereof contributed by numerous appropriations.

DEVELOPMENT OF COST SYSTEM.

18. The foundations of the industrial cost accounting system are the plant inventory and the classification of operating accounts. In the production factor system the principle is recognized that certain large elements of overhead expense, e. g., depreciation, repairs,

power, etc., are incurred directly in connection with the physical utilities of the plant and that a proper distribution of expense is possible only when a distinction is made between the heavy overhead expense of machine production and the light overhead expense of hand production. In other words, expense is more equitably distributed to output on the basis of the type and value of the equipment used and of the time it is employed on the job than on the basis of dollars of direct wages.

19. A plant record which shall contain all essential information without being unwieldy and a systematic classification of accounts which shall embrace all the yard maintenance charges are essential for the determination of the amount and point of incidence of the various elements of expense which enter into the hourly rate, as well as for purposes of administration and control. During the fiscal year 1916 these two essential tools of the cost system have been installed and perfected.

20. The next steps in the installation of the system are the standardization of methods which have been adopted of distributing general expense to shop expense and the determination of the amount of expense to be distributed to output through the shop rates. The principle contemplated in fixing these rates is that they should absorb the entire expense only when the plant is running at the full capacity for which it is designed and equipped; when the plant is running at less than full capacity such portion of the fixed charge as is incident to maintaining idle utilities will not be absorbed in the cost of the output. In the meantime the amount of the indirect charge to jobs is temporarily determined by a percentage applied to direct wages, determined as prescribed in paragraph 162.

21. The segregation of the nonproductive overhead is the central fact in the present cost system, which is designed to overcome the objections that lie on the one hand against the former partial distribution of overhead charges to output arbitrarily based on the amounts and kinds of charges which could be construed as legally to be diverted from maintenance appropriations to output appropriations, and on the other hand to any system of charging to the output all of the expense of an overequipped plant.

22. The unsoundness of any system based on the latter principle was set forth in a report to the British House of Commons dated July 27, 1868, from which the following extracts are made:

> "As ship building officers, we can have no hesitation in saying that if the dockyards were to be regarded from our own point of view only, we should not think of retaining the heavy establishment expenses that at present exist. We should object to the naval superintendents and their retinue, to a very large proportion of the existing storekeeping, accounting, and clerical staff, to the presence of a considerable staff of the metropolitan police in each yard, and to many other charges.
>
> "We do not say that these sources of expense are unnecessary or undesirable, looking to all the objects of the dockyards; but we do say the mere shipbuilding and ship repairing works alone do not

require such expensive arrangements, and that there is nothing in the private trade to be compared with them in extent. A very large part of the present establishment expenses arises out of the necessity of furnishing Parliament with full detailed accounts of work, for example, and this is no doubt a very proper thing to have done; but it is idle to call this duty the 'supervision of shipbuilding,' and we object in the strongest manner to the charge of it appearing under the head of 'salaries paid for supervision,' and being charged, as it now is, to the cost of ships.

"It must also be borne in mind that in times of peace more royal dockyard establishments exist than are actually required, and each establishment is maintained on a more expensive scale than is then necessary, as a kind of insurance against the outbreak of war; and it appears to us to be as wrong to put this additional expense upon the cost of the few ships actually built as it would be idle to hope to get rid of it by ceasing to build in the yards at all. In fact the error of the present system will at once be seen if we imagine for a moment shipbuilding and large repairs to be excluded from our dockyards. This change would not get rid of the principal home dockyards or of the 11 establishments abroad, the cost of which would still go on in connection with the maintenance and refit of ships in ordinary and in commission; but the whole cost of them would be brought to bear under the present system of accounts, upon these secondary works, the apparent cost of which would thus be enhanced to a monstrous extent.

"Dockyard economy ought, we submit, to consist of something by which the public money is really saved; but this suppression of shipbuilding works in the dockyards would only add to the public outlay by employing other establishments to perform these works which the existing establishments are equal to; and for the same reason the imposition of all existing establishment expenses upon the cost of ships tends to give a purely fictitious appearance of expensiveness to works that are often really and truly economical.

"The mixing up of these general establishment expenses, which are largely independent of shipbuilding operations, with the cost of those operations themselves and their subsequent distribution in a disguised form over all shipbuilding works appears to us to conceal their true nature, to screen them from scrutiny, and to make them the means of misrepresenting most unfairly the management of the dockyards and the cost of the works therein conducted.

"During the current financial year we have done and are doing a large amount of shipbuilding work and have a corresponding expenditure of labor and materials over which to distribute the pro rata charges for incidental works and for establishments. We have in the home yards wages amounting to about £1,036,000, and as a part of this sum is being expended upon building works the outlay for material will of course be correspondingly great.

"Next year we shall have but £879,000 to spend in wages, and the greater part of it will be expended upon fitting out ironclad ships and other works on which but a small quantity of material will be required.

"Even in Chatham Dockyard, where the labor vote will not be diminished, and where it will all be expended on shipbuilding, it so happens that, owing to the advanced state of the two large ironclads, *Hercules* and *Monarch*, the consumption of material will be comparatively small.

"Consequently, with £157,000 less to expend on wages, and with a still larger proportionate diminution of materials, but with the enormous aggregate of the incidental and establishment expenses of all the home and foreign yards still pressing with undiminished force upon our outlay for labor and materials, it is absolutely certain that the cost of our work next year will seem to be most extravagant. It is impossible to imagine anything more thoroughly disheartening and demoralizing to our practical officers throughout the dockyards than thus to find themselves not only without the chance of working cheaply but doomed beforehand to a condemnation of circumstances with which they have nothing whatever to do.

"In seeking for a fair and reasonable basis of comparison between public and private shipbuilding works—a point which we come now to consider—it is most necessary to bear clearly in mind the object the comparison intended to serve. The object ought to be, we submit, and no doubt is, to ascertain if material and labor are economically expended upon the building and repair of Her Majesty's ships in Her Majesty's dockyards. No doubt there is a further object desirable, viz, that of ascertaining whether the dockyard establishments are or are not economically conducted in other respects; whether money is or is not wasted in other ways, such, for example, as upon superintendence and supervision, alterations, excessive expenditure of stores, and undue dockyard and harbor expenses generally. But the answer to this second question can not, for reasons already stated, be at all facilitated by charging all such expenses to the cost of the shipbuilding done. The full burden of all the expenses of all the dockyards at home and abroad is so great that the shipbuilding and repairing work can not possibly sustain it; and if it is forcibly imposed upon that work, and that alone, dockyard work must of necessity appear extravagantly costly, and as a logical consequence it must be stopped altogether."

NAVY YARD WORK.

CLASSIFICATION OF WORK.

31. Work at a navy yard falls in four general classes:
(*a*) Building or repair work (ships), under Titles A, D, K, and P.
(*b*) Manufacturing work, under Title Z.
(*c*) Building, repair, and maintenance work which the yard does for itself, embracing all work under Titles E and G.
(*d*) Miscellaneous work, embracing work under Title V for the benefit of the naval service in general, work for the benefit of the Government (auction sales), and work for other departments of the Government and for private parties.

32. The term "productive work" is applied to all of the above work except plant maintenance (Title G), the labor element thereof being designated as "productive labor."

SHIP AND MANUFACTURING WORK.

33. Ship repair work originates on board ships in the manner prescribed in Chapter I 37, Navy Regulations. The construction of a ship at a navy yard is usually authorized in the act authorizing the construction of the vessel, and the work ordered at a certain navy yard by the Navy Department.

34. Manufacturing work originates with the preparation of a manufacture request by the supply officer. The procedure in regard to manufacture of outfits for ships is prescribed in Article I 4608, Navy Regulations.

35. After being authorized, the work is inaugurated by the commandant or industrial manager (usually delegating their authority to heads of divisions or departments or to a planning and estimating section) by the issue of a job order to the foreman or foremen who are to do the work as authority for the expenditure of the labor and material necessary to its accomplishment. A copy of the job order, known as the final cost record, is forwarded to the accounting officer for recording the charges made on its account.

36. For reference purposes and to insure the proper segregation of charges, job orders are numbered and symbolized to show the appropriation, the title, the ship for which the work is done (inapplicable to Title Z jobs), and a serial number immediately following the title. The following is an example of the present job-order number:

$$\frac{1\text{–}D\text{–}1}{39}$$

interpreted means appropriation C & R; Title D, Ship Repair; Job No. 1 on the *Arizona*.

37. Numbers for both appropriations and ships were originally assigned at the navy yard, New York, and afterwards put into effect at all of the industrial yards. When ships not on this list come to the yard for work or new appropriations are made, application should be made to the accounting officer for numbers. When the Bureau of Supplies and Accounts started the use of tabulating machines, these numbers were found inadequate and a new system of numbering for appropriations and ships was established, as published in Bulletin No. 1. Inasmuch as the latter system of numbering would add materially to the numbers or characters of the job-order symbol, if adopted for that purpose, it is not the intention to require that bulletin numbers should for local use supersede the old numbers. If, however, it should appear that there would be an advantage in the use of the new numbers, authority will be granted by the Bureau of Supplies and Accounts to adopt them for job-order number purposes.

PLANT WORK.

41. The third class, building, repair, or maintenance work, which the yard does for itself, comprises:

(*a*) Work which adds value to the plant; that is, additions and improvements which increase the productive capacity or decrease operating expenses and which in a commercial concern would be charged to the capital account. The work under this section is chargeable to Title E.

(*b*) Maintenance work and those operating expenses which can not be assigned directly to Titles A, D, K, P, E, and V; in other words, the work which in a commercial concern constitutes the overhead or indirect expense. The work under this section is chargeable to Title G.

42. The work in this third class must necessarily originate in the yard, but the work under the first subdivision, or that which adds value to the plant, must be approved by the bureau of the Navy Department whose appropriations are affected. (This is not to be interpreted as modifying existing practice in the case of work under the cognizance of the Bureau of Yards and Docks.) The majority of these items are specifically appropriated for under the Bureau of Yards and Docks' public works or navy yard appropriations; also under the Bureaus of Steam Engineering and Construction and Repair appropriations Machinery Plant and Construction Plant, respectively. At times, however, work is done under current annual appropriations, but in each case such work must be specifically approved before undertaken at the yard. Job orders are issued under this subdivision so as to show appropriation, title, and the activity and character of property, with serial number immediately following the title. The following is an example of the job order under this class of work:

$$\frac{14\text{-}E\text{-}1}{0103}$$

interpreted, means: Navy yard appropriation, Title E, for a new building or extensive additions to an old building for the supply department.

43. The work under the second subdivision consists of expenditures for pay of clerks and draftsmen, foremen's salaries, oil, waste, grease, and other consumable supplies for the plant, and other expenses incident to the maintenance and operation of a navy yard. As these charges are of an everyday nature, no specific job order or individual authority is ordinarily issued to the foremen authorizing them to make charges; instead, such authority is understood to exist, and this authority is ordinarily spoken of as a standing job order, or an account.

44. Certain of the above charges must be made directly to appropriations; notably of this class is the pay of clerks and draftsmen. Such charges will be reported to the accounting office and charged to the appropriation, title and accounts, as follows:

$$\frac{3\text{-}G}{0410}$$

indicating that it is a charge against appropriation "Engineering," Title G, general office of the yard and the clerical assistants of this office.

45. Other charges under this subdivision are not assignable to any specific appropriation at the time that they are made; such charges are for consumable supplies, supervision, etc. These charges are reported without appropriation designation to the accounting office, as follows:

$$\frac{X\text{-}110}{}$$

indicating that it is for the structural department, plate and angle section, and consumable supplies. These charges are prorated to appropriations daily in the manner prescribed in paragraph 132-b.

MISCELLANEOUS WORK.

51. The miscellaneous work done at navy yards is as a rule comparatively small. This class embraces the following: Work done for the benefit of the naval service in general, not assignable to any specific yard, station, or ship (Title V); work done for the Marine Corps and other departments of the Government; work done for contractors and others on special deposit and preparation of material for auction sales.

52. Work done under Title V originates in Washington. A job order is issued for such work showing the appropriation, title, and the account to which chargeable. A list of these accounts appears at page 15. The following is given as an example of work under Title V:

$$\frac{8\text{-}V\text{-}1}{14}$$

showing that it is chargeable to the appropriation "Ordnance and Ordnance Stores," Title V, and is for tests and experiments (object No. 14).

53. Work for private parties and for other departments of the Government are treated in detail in the Navy Regulations. (See Articles I 4370 et seq. and 4391 et seq.)

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PROCUREMENT OF LABOR AND MATERIAL.

61. Labor at a navy yard, other than that of officers and enlisted men, is obtained in two ways:

(*a*) Requests on the Civil Service Commission for clerks, draftsmen, messengers, etc. In such cases the head of department writes a letter to the Civil Service Commission, through the commandant, describing the vacancy which he desires filled. The Civil Service Commission returns to the commandant a list of names of those who may have passed the civil service examination, and are, therefore, eligible for appointment, together with their applications for appointment and examination papers. The head of department making the request selects such man as he may deem best from the facts available and reports his selection, through the commandant, to the Civil Service Commission. This man is duly certified to the Navy Department, and appointed under some one of the appropriations wherein it is specified that clerks, draftsmen, etc., may be employed.

(*b*) Requests on the board for labor for mechanics and other yard workmen. In such cases the board of labor keeps a list of applicants by trades. Upon the lists, applicants are graded in accordance with their letters of recommendation, etc. Upon the receipt in the board of labor of a request for workmen, postal cards are sent to those men who head the list of their respective trades. This postal card tells the applicant to report to the navy yard at a certain time and place. After doing this, he is questioned by the head of department concerned, or his delegate, and if pronounced fit, he is ordered to report to a certain shop at a certain time. He is then taken to the check window of the accounting office, and there assigned a number and entered on the pay roll for pay from the date and time that he is ordered by the head of department to report at the shop. The accounting office makes what is known as a service card for the man. This service card really constitutes the basis of the pay roll. The shop to which the man is to report is notified by giving them a check bearing the number of the man taken up. The usual procedure at most of the navy yards is then as follows:

62. His check is hung on the board which contains all of the checks of men assigned to that particular shop. The men muster at the beginning of work in the morning and at the beginning of work in the afternoon by taking their checks from the check board and dropping them in a box. A member of the supervisory force of the shop is present at the board while this is done. Necessarily those checks which are left on the board are the absentees. A list of these numbers is taken by the time clerks and reported to the accounting office immediately after muster. The service cards of the numbers so reported are taken from their respective files and each man marked as an absentee, or as on leave with or without pay, as the case may be.

63. The check numbers shall be assigned according to the numbers of the purpose groups of the yard. The workmen employed in each of

these groups will have for the first two numbers of their check number the shop number; the other figures will be a serial number given them in the order of employment. Each set of serial numbers will start with the number 1. Example: Check No. 7117 is for painter No. 17 (shop No. 71).

64. Navy yard employees are entitled to 30 days' leave each year that they work. Each individual is required to make and secure approval to his application before going on leave. This is done on S. & A. Form No. 206c, Application for Leave. Leave cards go to the accounting office with the list of "Outs" in order that the accounting office may make the proper entries on the service cards.

65. When mechanics and laborers are late Excuse Cards, S. & A. Form No. 283, are forwarded to the accounting office after they report, permitting them to return to work. If a man is late but a few minutes, he is not permitted to go to work until the beginning of the next hour; that is, if whistle blow in the yard at 8 o'clock and a man reports 5 minutes late, he is not permitted to go to work until 9 o'clock and so loses ene-eighth of a day's pay.

66. Employees of the clerical, drafting, and messenger force use a time clock or sign an attendance slip, showing the time of arrival at and departure from the yard. These slips furnish the data for preparation of time cards for the accounting department and information for the efficiency records. The leave cards of these employees are handled in practically the same way as for the workmen.

67. When it becomes necessary to reduce the force of mechanics and laborers, the head of the department directs that a certain number of men of each shop and trade be either discharged or furloughed. The yard foreman transmits a list through the head of the department to the accounting office giving the check numbers, names, and rates of these men, and the date their discharge or furlough becomes effective. The accounting officer closes the accounts of these men on the date specified and transmits a discharge pay voucher to the shop foreman. In case there are more than eight men furloughed or discharged a a special pay roll is prepared and transmitted to the disbursing officer of the yard, and ordinary pay vouchers are transmitted to the foreman of the yard for distribution to the men concerned. Special return of all men enrolled and discharged is forwarded to the labor board.

68. The requisitioning, purchasing, and caring for stores is described in chapter 39, Naval Instructions.

ACCOUNTING DEPARTMENT ORGANIZATION AND ROUTINE.

N. B.—Certain phases of this organization and routine are not standard for all yards, due to local conditions. This is particularly the case at yards where statistical machines are being experimented with. See paragraph 461.

GENERAL OFFICE ORGANIZATION.

81. The accounting department is divided into three sections: Time section, cost section, and report section. To the time section is assigned all pay-roll duties; to the cost section, the daily and monthly postings of charges to job orders and expense accounts; and to the report section, compilation of all routine daily and monthly reports of expenditures, cost summary of each job order as it is completed, and such special reports as may be required from time to time by the Navy Department, the commandant, or heads of the departments or divisions.

TIME SECTION.

91. A clerk, ordinarily designated as the time clerk, is assigned to the check window. It is his duty to assign check numbers to new employees and to open service cards, as follows: The workman surrenders at the check window the postal card which he received from the board of labor employment, and is assigned a number for the purpose of time keeping. This number is entered on the postal card, and the card is then turned over to the addressograph operator, who prepares a stencil for use with the addressograph machine, showing the man's check number, his name, his rating and rate of pay. This stencil is then printed at the top of the service card, and the stencil, postal card, and service card are returned to the time clerk for comparison; the service card being found correct, it is filed under the name of the shop to which the man is ordered to report, in order of check number, the stencils being filed in the same way. It is the duty of the time clerk at the beginning of each month to add all of the service cards in order that the total complement of the shop may be known, and also to add all of the rates of pay on these cards to establish the total shop pay for its complement. The total complement and total pay of the complement is entered on S. & A. Form No. 289, Shop Record of Employment and Discharges. When men are enrolled or discharged they are added or subtracted from the total complement and pay of the complement of the day before. Each day after the afternoon muster, the time clerk takes the list of "Outs" from the shop with the leave cards, posts the service cards, and prepares what is known as a tally card for each shop. This tally card shows the total amount of pay of the men working in that shop on each day. The tally card is placed on the pay roll clerk's desk to use the day following the day on which the men were actually working.

92. The pay-roll periods in navy yards are as follows: The first period from the first to the eighth day, inclusive; second period, from the ninth to the fifteenth day, inclusive; third period, from the sixteenth to the twenty-third day, inclusive; fourth period, from the twenty-fourth to the last day of the month, inclusive. Employees of the clerical, drafting, and messenger force are paid twice a month. At the beginning of each one of these pay periods, the addressograph operator prints a rough pay roll, S. & A. Form No. 296, for each shop. The number of men on each pay roll and the rates of pay are added to see that the amounts agree with the time clerk's book, S. & A. Form No. 289. After these rough pay rolls have been checked and found correct with the time clerk's register, they are placed on the pay roll clerk's desk for use in checking the time chits.

93. It is the duty of the shop foremen to forward to the accounting office, as early in the morning as it is possible, for the day before, a time card or chit for each man for each job that he worked on. A method of handling these time chits is best described by the order of the commandant of the Norfolk Navy Yard on this subject, issued April 6, 1912, which is herewith given in detail:

TIME CARDS.

"1. The following regulations with regard to time cards will be put into effect gradually in one or more shops at a time as directed by the officers in charge of division and departments.

"2. Time cards will be prepared showing the work to be done in advance of the actual beginning of work by the workmen. They will be delivered to the workmen on mustering in the morning and upon the completion of jobs during the day. They will be collected during the last hour of work and upon the completion of jobs during the day. They will be verified by the supervisor in charge of the work at the time of collection. They will be computed as to time worked and pay earned and assorted by check numbers by the shop clerk. They will be transmitted to the accounting office not later than 10 o'clock a. m. of the day following that on which the work was actually performed.

"3. Boxes . . . will be provided in all of the shops in which the partially prepared and completed time cards may be kept and handled in a systematic manner. Racks . . . for distributing cards at muster will also be provided.

"4. To insure a complete understanding of the instructions above outlined, the full details of procedure are given, tracing the course of the time cards from the time of printing in the accounting office to the final return thereto:

PRINTING AND DELIVERY TO SHOPS.

"(*a*) Six time cards for each man, or one week's supply, shall be issued every Monday morning by the accounting office to the various shops. These cards will have printed on them by means

of the addressograph machine in the accounting office the man's check number, name, rate, pay per hour, and the shop designating letter. After delivery of one lot of cards the printing of the next lot will be undertaken, so that they will be ready for delivery on Monday of the following week.

HANDLING OF THE PRINTED CARDS IN THE SHOP.

"(*b*) The cards when received in the shops will be placed by the shop clerks in boxes . . . , the cards for each man being placed in the pigeonhole marked with his check number. It shall be the duty of the shop clerk each day to date the cards for the following day. A supply of blank cards will also be kept on hand by the shop clerk and dated by him as needed for the second or succeeding jobs of each workman who may complete more than one job in a day.

PREPARATION, DELIVERY, AND COLLECTION.

"(*c*) There will be a man detailed in each shop, to be known as the card man, who will be one of the supervisory force or a clerk acting under the supervisor's direction. He will be charged with the writing of the time cards for issue to the workman. He will see that a separate card is prepared for each man for each operation or set of operations for each day or portion of a day; that each man has at all times a card waiting delivery for his next job before the job that he is working on has been completed. The first card of the day will be the printed card furnished by the accounting office. In addition to the information printed thereon will be stated: The *job-order number, the operation number, the plan or sketch number, a brief description, and the time started,* which will be entered at the time of whistle blow in the morning. For the second or succeeding cards of the day blank cards will be used and have written thereon the check number, name, rating, hourly rate of pay, as well as those details stated for the first card, with the exception of the time of starting the day's work. They will be placed by the card man on racks near the place of muster where the workmen can obtain them immediately on checking up in the morning.

"(*d*) As the workmen in shops finish their jobs they will turn in their cards to the leading man and obtain additional cards which have been prepared for them. Cards so turned in will have the time started and the time stopped, respectively, entered thereon by the leading man and will be initialed by him.

"(*e*) As workmen on the outside finish their jobs they will turn in their cards to the leading man in charge of the work and be assigned new cards for other work. The leading man will enter the time of starting and the time of stopping and will verify by initial.

"(*f*) The leading man will be particular to keep himself supplied with prepared cards for new work well in advance of the comple-

tion of jobs, and will communicate by telephone or otherwise with the card man in the office and keep him advised as to the men who are to be assigned to other work and to notify him to send supplies of new cards.

"(*g*) The leading man will also be particular to send these cards which are collected during the course of the day to the shop office as soon after collection as practicable.

"(*h*) During the last hour of work in the afternoon each leading man will make a tour of the jobs under his charge and collect the time cards from his men, verify at that time the correctness of the cards, entering the time stopped as the time of whistle blow in the afternoon, and place his initials in the space at the bottom of the card, and mark for 'finished' or 'not finished.' These cards will be turned in to the shop clerk by the leading man on quitting work.

FILING AND COMPUTATION IN THE SHOP OFFICE.

"(*i*) As cards are received in the shop office the shop clerk will enter the elapsed time on the card, as ascertained by subtracting the time of starting from the time of stopping, and fractional part of the elapsed time being stated to the nearest tenth of an hour, and compute the amount of pay earned by multiplying the elapsed time by the hourly rate. Having done this, he will file the cards in the second pigeonhole box similar to that provided for filing partially prepared cards. This box will have provided a pigeonhole for each man carried on the shop rolls, each pigeonhole being marked with the man's check number and daily rate of pay.

"(*j*) The time immediately following the a. m. muster will be reserved for computing those cards which were turned in by the leading man the night before, and during this time the shop clerk shall be assisted by all available members of the office force in the shop, and he must not be disturbed to answer telephone calls, make requisitions, or for any other purpose, as it is essential that these cards reach the accounting office at the earliest possible moment.

"(*k*) After having computed and distributed all of the cards in the pigeonholes as above provided, he will check the cards to see that none are missing. This can easily be done by taking all of the cards in one pigeonhole and adding the amount of pay given and seeing that they agree with the amount of the man's daily rate of pay. As this is done, the cards will be laid face downward in the order in which they are taken from the box, when they must necessarily be arranged in order of check numbers. After this is done and it is ascertained that there are no missing cards they will be immediately transmitted to the accounting office by special messenger.

"(*l*) It will be seen that if the shop clerk is diligent in the computing of those cards which are turned in during the day there will be on hand in the morning for computation but one card for each man in the shop.

EXCEPTIONS.

"(*m*) Time cards for foremen, leading men, quartermen, and other supervisors and for men on permanent details, such as tool-room keepers, shop sweepers, etc., will be made out daily by the shop clerk under the instruction of the foremen."

94. With the installation of time clocks for stamping time started and stopped and with the development of the practice of preparing the instructions on time cards in the planning section before it is known what workman will be assigned to the operation, modifications in the above indicated procedure are necessary.

95. The time cards on receipt in the accounting office are first checked with the rough pay roll. The pay-roll clerk sees that he has time cards from each man of a shop aggregating his pay for the time which he worked on the day in question; and if so, he indicates it by a check mark in the appropriate square of the roll; if he has no time cards, he examines the list of numbers on the tally card to see if the man was out; if out, without pay, he marks a zero in the square opposite the man's check number. If out only a part of the day, he fills in this square with the amount of pay which he earned for the time while he was working. After thus checking all of the time cards, the pay roll of each shop is added up and the total must agree with the total reported on the tally card.

96. As fast as the time cards are checked, they are assorted by job orders numbers or account numbers (i. e., standing job order numbers). When the last card of a shop is posted and assorted, all the cards of the same job order number or account number are stapled together. These bundles are then added and the total of each bundle is noted on the top time ticket. All bundles of a shop are then assorted by appropriations and a labor summary is prepared for each appropriation. Those time cards which are charged against accounts without any appropriation designation are put on separate labor summaries, under the head of "Indeterminate." All labor summaries are then added, and the total for a shop must equal the tally card for the shop. The bundles of time cards are then passed from the time section to the cost section.

97. On the first day of each pay-roll period, it is necessary for the time section to close the pay rolls for the period just ended. This is done by adding the days and hours each man has worked and multiplying by his rate of pay. The total of the "total pay" column must equal the total of all of the daily columns. A smooth roll is then copied from this rough roll showing, in addition to the man's check number, name, rating, and rate of pay, the number of days which he worked, and the amount earned. This smooth roll is transmitted to the disbursing officer of the yard for payment. Each man is given a pay voucher, showing the amount which he has due him on the roll. These vouchers and smooth roll are printed on the addressograph machine from the stencils before mentioned, and the amount due filled in, either with pen and ink or on the typewriter. At some yards, an adding machine is used for filling in the days and amounts on the smooth roll. Vouchers are bundled together, by shops, and transmitted to the foreman of the shop for delivery to the individual men.

98. Naval Instructions, Departmental orders and decisions of the Comptroller of the Treasury govern the pay status of employees for overtime, Sunday, and holiday work; leave, holiday, and disability, etc.

COST SECTION.

111. The chief poster upon receiving the bundles of time cards assembles them by appropriations irrespective of shops. Each poster is assigned one or more appropriations, and he receives from the chief poster the bundles of time chits affecting his appropriations and posts them to the Recapitulations of Cost Charges, of which there is one opened for each job order or account. The Recapitulations of Cost Charges are kept in loose-leaf binders, arranged in order of job order numbers, as follows: First all of the same appropriations are filed together, all of the same title under that appropriation, all of the same ship or account under the title, then in order of serial numbers. After all of the time chits are posted, each poster adds his sheets horizontally to get his total charges to each job order for the day. The sheets of each appropriation are then added to ascertain the total labor charges against that appropriation for the day. This total is checked against the total of the Labor Summaries of that appropriation and must agree; the totals for each appropriation are carried to sheets known as the "Abstract of Appropriation Expenditures (labor)." The total of all appropriations must equal the total of all Labor Summaries, and so must agree with the total labor roll of the day.

112. Material is handled in much the same way. Each foreman as he gets material in the shop prepares a stub requisition, in triplicate, retains one copy for his files and forwards the other two to the supply officer. The latter makes delivery of the material to the shop, and prices both copies, retaining one as his voucher for the expenditure and forwarding the other to the accounting office at the close of the day, together with all other stub requisitions received that day, with an adding-machine list, showing the total. These stubs go directly to the chief of the cost section, who assorts them by appropriation number and gives them to the posters concerned. Each poster posts them on the reverse side of the Recapitulation of Cost Charges, adds them horizontally for the day's work, and adds his stubs also to see that the total of the postings equals the sum of the stubs which have been given him. The totals for each appropriation are carried to the Abstract of Appropriation Expenditures (material). Each foreman furnishes the accounting office with a list of the numbers of the stub requisitions which he draws each day. These numbers are posted against the job orders concerned in order that no job order may be closed as long as there is material still to be charged.

113. Further details of cost section methods appear below under Detailed Accounting Instructions.

REPORT SECTION.

121. The duties of the report section include the rendition of returns, as prescribed in paragraph 491 et seq., the maintenance of special cost accounts for manufacturing shops (par. 191), the maintenance of liability accounts against the statutory limit of repairs to vessels (par. 441) and such other duties as may be assigned.

DETAILED ACCOUNTING INSTRUCTIONS.

APPROPRIATION CHARGES FOR YARD MAINTENANCE.

131. The charging of yard maintenance expenditures to appropriations is, as explained in paragraphs 7–17, entirely distinct from the application of indirect cost charges to productive job orders, the latter not becoming a charge to the appropriation under which the jobs are authorized.

132. All shop and general expense is chargeable to appropriations at the time incurred, as follows:

(*a*) Direct charges to appropria ions.—It is the intention, where practicable, that all maintenance charges shall be made direct to the proper appropriations in accordance with the objects specified thereunder in the acts. Owing to the fact that sufficient funds are not provided under the annual Yards and Docks appropriations to cover all the specific items enumerated thereunder, recourse must be had. in the case of a large number of such charges, to the general provision of the act of June 30, 1914, as applied in (*b*) below. The direct charges to Maintenance, Yards and Docks, and to Repairs and Preservation are therefore to be restricted in general to the following: Repairs to military buildings, communication, water and sewer systems, to tracks, railroad rolling stock, vehicles and miscellaneous yard appliances, and all expenses of the public works department. All leave, holiday, and disability for employees normally carried on the public works department rolls shall be charged to Maintenance, Yards and Docks.

(*b*) Prorated charges to appropriations.—Supervision, miscellaneous labor and consumable supplies, leave, holiday, and disability pay of mechanics and laborers other than those normally carried on the public works department rolls, attendance on and fuel for power plants, and minor repairs and maintenance shall be reported to the accounting department without appropriation designation and shall daily be prorated to the appropriations by the accounting officer as prescribed in paragraph 133. In the case of general expense it is impracticable to prescribe definitely what items shall be charged direct and what items shall be charged as indeterminate. It depends to some extent on the condition of the local allotments under Maintenance, Yards and Docks, and Repairs and Preservation.

133. The indeterminate charges referred to in paragraph 132-b shall be prorated daily to appropriations as follows (leave, holiday, and disability as provided in par. 143): The time cards and stubs will be separately added in five groups and recorded by shops in the shop book (S. & A. Form 288) as follows:

(*a*) Charges to Titles A, C, D, K, P, E. and V (except under annual Yards and Docks appropriations).

(*b*) Charges to Titles E and V, under annual Yards and Docks appropriations.

(*c*) Direct charges to appropriations for maintenance—Title G.
(*d*) Indeterminate maintenance charges—Title G.
(*e*) Charges to Title Z job orders, proceeds of auction sales, Marine Corps, work for other departments, and private parties.

A permanent indirect charge will be computed on the direct labor charged to (*e*) above. This indirect charge will be split between labor and material on the basis of an estimate of the actual charges made to the expense accounts (75 per cent to labor and 25 per cent to material being about the average split). This indirect charge, plus the value of all current credit memoranda for Title Z shops, will be deducted from (*d*) above, and the difference will be prorated to the various appropriations (except the annual appropriations under the cognizance of the Bureau of Yards and Docks) on the basis of the direct labor charged thereto under all titles other than G. On the last of each month an adjustment will be made on account of power transferred direct to appropriations. (See par. 254.)

134. The following method of distributing indeterminate charges will be used whenever direct labor charges are made to Title Z job orders under Ordnance appropriations: Deduct from the total indeterminate expense the total indirect expense charged to job orders under General account of advances—Naval supply account, proceeds of sales, Marine Corps, other government departments and special deposits. Compute the distribution of the remaining indeterminate expense to Naval appropriations (except Yards and Docks annual appropriations) on the basis of the total direct labor charged to *naval appropriations* (except Yards and Docks annual appropriations) under all titles other than G. After this computation has been made, deduct from the amount determined as distributable to each of the ordnance appropriations the amount of indirect charged to that appropriation on Title Z job orders and charge the remainder to the appropriation as Title G indeterminate. Do not credit out the indirect expense charged to the appropriation under Title Z.

135. At the end of each month the total indirect expense, computed on job orders as provided in paragraph **161**, shall be reported on the reports of expenditures under each appropriation, title, and ship or account, but the total of all indirect expense so reported (except that charged to work classed under paragraph 133 (*e*) above) shall in each case be entered as a credit to the appropriation under the caption Indirect Expense Deducted.

APPROPRIATION CHARGES FOR LEAVE, HOLIDAY, AND DISABILITY.

141. Subaccounts under class 1—losses and gratuities—will be established under each purpose group, by sections where practicable, as follows:

7. Leave.
8. Holiday.
9. Disability.

The leave, holiday, and disability pay of mechanics and laborers will be charged by the accounting department to the above accounts

preceded by the number of the purpose group under which they are employed, but without any appropriation designation, except that in the case of employees of the public works department the charge will be made to Maintenance, Yards and Docks. The time of clerks and others holding appointments under specific appropriations will be reported as a charge to the above numbers, preceded by the purpose group number and the number of the appropriation which is mentioned in their appointment.

142. The time due to leave, holiday, and disability of all clerks and other employees holding appointments under specific appropriations will be made a direct charge to Title G and the appropriation specified in their appointment. All leave, holiday, and disability pay for employees normally carried on the public works department pay rolls will be charged to Maintenance, Yards and Docks, Title G. Unless chargeable to another appropriation, as provided above, leave, holiday, and disability pay for employees in the supply department will be charged to Maintenance, Supplies and Accounts, Title G; to Ordnance and Ordnance Stores in the case of ordnance men paid from that appropriation and to Fuel and Transportation in the case of employees of the coaling plant.

143. Leave, holiday, and disability pay for all employees except those provided for in the preceding paragraphs will be distributed, when occurring, to the main appropriations under the cognizance of each bureau (except Supplies and Accounts and Yards and Docks), namely: Construction and Repair, Engineering, Ordnance and Ordnance Stores, and, at navy yards where construction is in progress, Increase of the Navy appropriations. The distribution will be made on the basis of the total productive (i. e., other than Title G) labor charged to all appropriations under the cognizance of the various bureaus. The basis for leave will be the basis for the day, the basis for holiday will be the basis of the day preceding, and the basis for disability will be the basis of the pay period.

APPROPRIATION ALLOTMENTS AND DAILY REPORTS.

151. Letters from the various bureaus of the Navy Department notifying the commandant or industrial manager as to the amount of the monthly appropriation allotments shall be forwarded to the accounting office.

152. A daily report shall be prepared by the accounting department showing the state of the appropriation allotments. This shall be done after the labor and material has been posted, recapitulated for the day, the totals carried to the "Abstract of appropriation expenditures," and the indeterminate Title G charges distributed, split between labor and material and carried to these same sheets.

153. These statements will show the amount of the expenditures for the day's work by labor and material, the total expenditures to date, and the unexpended balance of the allotment. Material issued from the ordnance or used material account, not being a charge to appropriations, need not be shown unless the commandant or manager so directs.

154. As these allotments must not be exceeded, and as this daily statement is the only guide which the commandant or manager has to enable him to keep within his allotments, it is of the utmost importance that these reports reach him at the earliest moment possible after the expenditure has been made, i. e., after the work has been performed. At the latest, this report should be in the hands of the manager at the close of the day following that for which the report is rendered.

SHOP RATES FOR INDIRECT COSTS OF JOBS.

161. At the end of each month indirect costs shall be computed on all productive job orders, i. e., all job orders other than those under Title G, by shop percentages on direct labor. The shop percentages shall be applied to the labor of employees carried on the various producing section (shop) rolls. No indirect rate shall be applied to the pay of draftsmen and planners and estimators when charged directly to job orders, such employees being carried on the nonproductive rolls (general expense departments). The pay of all other employees on the nonproductive rolls is chargeable to general expense. Indirect costs of output of the foundry and other Title Z shops are distributable on material, as provided in paragraph 192.

162. Until further notice the shop rates used shall be those fixed for the fiscal year 1916, which were determined by taking 72 per cent of the percentage which the prorated shop expense plus the general and power expense transfer of each shop under the old system bore to the productive labor of that shop for the fiscal year ending June 30, 1915.

FINAL JOB COSTS.

171. After the indirect costs have been computed, as prescribed in paragraph 161, the recapitulations of cost charges shall be turned over to the report section for the preparation of the report of expenditures. After this is done monthly postings shall be made from the recapitulations of cost charges to the cost records of the jobs concerned.

172. Upon receipt of notification of the completion of a job order no further charges shall be accepted except for outstanding stubs. The current charges shall be posted and the cost summary prepared and distributed as provided in paragraph 491.

JOB ORDER SYSTEM.

(In general, see pars. 31 to 53.)

181. When necessary to avoid undue delays in the pricing of material on the supply officer's books partial deliveries on Title Z job orders shall be priced and invoiced into store by the accounting department. On account of the difficulty of getting good prices on uncompleted jobs, the necessity of pricing partial deliveries should be obviated, whenever continuous work on a large order by operations is unlikely, by the issuance of several job orders under a manufacturing request, one order to be completed before making charges to any of the others. The apparent advantages of manufacturing in large lots are often discounted by reason of the impossibility of carrying all of the components through to completion.

182. The value of every voucher paid under Title E will be noted by the accounting department on all records and reports of the job orders concerned.

183. Articles drawn from store for repairs shall be drawn on memorandum receipts, and the repairs charged to job orders under Title P or under Title V and the proper account. Articles drawn from store for the purpose of completion or assembling shall be drawn on memorandum receipt and the work charged to Title Z job orders. The value of all articles drawn from store on memorandum receipt shall be noted on all job order records and reports concerned.

FOUNDRY AND OTHER MANUFACTURING SHOPS.

191. Direct labor of molders and coremakers and direct material shall be charged as indeterminate to the foundry accounts. Shop stores shall be maintained for the foundry direct materials and only such quantities as actually enter into the melt shall be charged to the foundry accounts. Castings shall be invoiced into store on credit memoranda and simultaneously charged to the job or expense account for which manufactured.

192. The invoice prices of castings, fixed for the fiscal year 1916 on the basis of average prices for the fiscal year 1915, including direct and indirect labor and material, shall be continued, with monthly or bimonthly adjustments to correspond to fluctuation of direct costs, until a full capacity method of determining the amount of indirect expense incident to output is placed in effect. Classifications of castings shall be made, subject to approval of Bureau of Supplies and Accounts, and appropriate factors assigned in order that the direct and indirect costs of castings of various sizes and complexity may be equitably computed on a per pound basis.

193. The value of the output of the foundry, as evidenced by the credit memoranda, shall be deducted daily from the yard indeterminate charges as provided in paragraph 133, treated as manufactured under Title Z, and reported as such on the reports of expenditures.

194. Special cost records shall be maintained for the foundry on S. and A. Forms 286a, 286b, 286c, 286d.

195. The paint factory, gas-manufacturing plant, galvanizing plant, ropewalk, clothing factory, coffee roaster, smelting shop, ropewalk, wire-rope mill, and tool-manufacturing shop shall be known as Title Z shops, and their operations shall be accounted for similarly to the foundry. Other manufacturing shops may be similarly operated subject to approval of Bureau of Supplies and Accounts.

CHARGES TO EXPENSE v. PRODUCTIVE JOB ORDERS.

201. In general, no charge shall be made to *shop expense* which can properly be lodged against a productive job order. Supervision shall always be charged to shop expense.

202. With the exception of draftsmen (section 042) and estimators and planners (section 043), all charges described under the *general expense* groups shall invariably be charged to general expense. While on occa-

sions this practice may conflict with the principle that direct charges, where possible, give better cost data than general charges distributed indirectly to cost of work, it is important in the case of the general yard service activities that their expense be properly compiled, not solely for the purpose of determining its incidence to work, but also for the purpose of rendering available, for administrative purposes, statistics as to maintenance and operation cost of these departments which shall be full and complete, and, where applicable, statistics as to output and unit cost of same.

203. The distribution of indirect expense to individual jobs will, under any system, result in inequalities, and no attempt to rectify them in the case of general expense by charging direct to job orders is likely to offset the disadvantages which would result from the diffusion of general-expense charges, which under the system in effect prior to 1915 was so marked as to make it practically impossible to determine what the yards were spending for transportation, power, administration, and supply expense. It is also to be noted that in charging general expense direct to job orders the charge would be incorrect in that in most cases only operating expenses could thus be charged.

204. Special adjustments are possible in the case of power and transportation which are a proper charge to other departments of the Government, etc., by the method prescribed in paragraphs 244 and 254.

205. An exception to the foregoing exists in the case of drafting work. It is possible by other means than by clearing drafting charges through the expense accounts to determine the total cost of drafting; and provision is made in the classification of accounts for the charging of the pay of draftsmen direct to productive job orders wherever practicable. This also applies to planners and estimators.

CONSTRUCTION OF ACCOUNT NUMBERS.

211. Account numbers are constructed on the Dewey decimal system. The standard account designation contains four elements, a fifth element being standard for Leave, holiday, and disability, under class 1, and in the case of account numbers under class 0, Miscellaneous labor and supplies, in order to show the charges in greater detail.

	First element, nonproducing or producing.	Second element, group.	Third element, section.	Fourth element, class.
0411	General expense..	Administration...	Clerical.....	Losses and gratuities.
0346	.....do.....	Power.....	Air.....	Machinery, etc.
X956	Shop expense.....	Special.....	Dry docks....	Do.

212. When greater detail is desirable for local information, the expansion should always be accomplished by adding figures 1, 2, etc., at the end of the standard number appearing in the Detailed classification.

This will insure the standard four or five element root always retaining its significance and being readily translatable; furthermore, where tabulating machines are used, all figures punched in the four standard columns will always have the same significance, and the compilation of charges to the standard number can be readily made by sorting for the standard elements only.

213. The use of accounts containing more than five elements is cumbersome and should be avoided, if practicable. Details of expense relating to such objects as repairs to machines, etc., will require reference to auxiliary job number or inventory number, as even a comparatively brief series of such items of work could not be embodied in the account designations without excessive expansion of the elements, since a single element will provide for only nine variations.

MAXIMUM GROUP CLASSIFICATION.

221. The group and section classification of nonproducing activities appearing at page 22 of the Detailed Classification of Industrial Accounts is standard for all industrial yards without exception.

222. The sections listed in the group classification of producing shops appearing at page 23 of the Detailed Classification of Industrial Accounts are those approved for the majority of the industrial yards. A full list of sections, any of which may be adopted by specific authority of the Bureau of Supplies and Accounts, is as follows:

1. 0. Structural.
   1. Plate and angle, M.
   2. Chippers, calkers, drillers, and riveters, L.
   3.
   4.
   5. Laying out and templating H, inside.
   6. Fitting and bolting H, outside.
   7. Sheet metal work, M.
   8. Sheet metal work, H.
   9. Wire work, M and H.
3. 0. Machine shops.
   1. Boring mills.
   2. Lathes.
   3. Auto and turret lathes.
   4. Milling.
   5. Drilling and punching.
   6. Planers, shapers, and slotters.
   7.
   8. Machinists, H.
   9.
2. 0. Smith work and spec. hull.
   1. Angle smith.
   2. Drop forge.
   3. Ship smith.
   4.
   5. Gas manufacturing.
   6. Gas, cutting and welding.
   7. Galvanizing shop.
   8. Nickel or electroplating.
   9.
4. 0. Boiler shop.
   1. Boiler makers, M.
   2.
   3.
   4. Boiler makers, H.
   5.

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5. 0. Electrical and pipe.
1. Electrical work, M.
2. Electrical work, H.
3. Coppersmith.
4.
5.
6. Pipe fitters.
7.
8. Plumbing, M.
9. Plumbing, H.

7. 0. Miscellaneous hull work.
1. Painters.
2. Laborers and riggers outside.
3.
4. Rigging loft.
5.
6. Sail loft.
7.
8. Upholsterers.

6. 0. Woodwork.
1. Shipwright, M.
2. Shipwright, H.
3. Joiners, M.
4. Joiners, H.
5. Spar makers.
6.
7. Wood calkers.
8. Boat shop.
9.

8. 0. Building trades.
1. House carpenters.
2. Masons.
3. Wharf builders.
4. Concrete laborers.

9. 0. Foundries and manufacturing.
1. Foundry, iron.
2. Foundry, brass.
3. Foundry, steel.
4. Pattern shop.
5. Dry docks.
6. Paint manufacturing.
7. Special manufacturing shops
8. Do.
9. Do.

NOTE.—M—Machine tool work; L—loose power tool work; H—handwork.

ACTUAL SHOP CLASSIFICATION.

231. The following shop classification, based on the classification actually in use July 1, 1916, is authorized. Unimportant sections carried in excess of this list shall be abolished. It will be noted that in some cases the necessary distinctions between machine and hand work are not being observed. In such cases steps should be taken toward bringing the local classification up to the average. Specific authority shall, however, in all cases be obtained from Bureau of S. and A. when it is desired to depart from this list.

	Portsmouth.	Boston.	New York.	Philadelphia.	Norfolk.	Charleston.	Mare Island.	Puget Sound.
11. Plate and angle	—	—	—	—	—	—	—	—
12. Chipping, calking, drilling, and riveting	—	—	—	—		—	—	—
15. Laying out and templating	—	—	—	—		—	—	—
16. Fitting and bolting, outside	—	—	—	—			—	—
17. Sheet metal, machine	—	—	—	—	—	—	—	—
18. Sheet metal, hand				—				
19. Wire work				—				
21. Angle smith	—	—	—	—		—	—	—
22. Drop forging		—	—				—	
23. Ship smith	—	—	—	—	—	—	—	—
25. Gas manufacturing:								
1. Acetylene			—		—	—	—	—
2. Oxygen			—		—	—	—	—
3. Hydrogen			—		—	—	—	—
26. Gas (cut and weld)		—	—	—		—	—	—
27. Galvanizing	—	—	—	—	—	—	—	—
28. Electroplating	—	—	—	—				—
31. Machine shop	—	—	—	—	—	—	—	—
37. Projectile factory							—	
38. Machinists, hand	—	—	—	—	—	—	—	—
41. Boiler makers, machine	—	—	—	—	—	—	—	—
44. Boiler makers, hand	—	—		—		—	—	—
51. Electrical, machine	—	—	—	—	—	—	—	—
52. Electrical, hand	—			—				—
53. Coppersmith	—	—	—	—	—	—	—	—
56. Pipe fitters	—	—		—		—	—	—
58. Plumbers, machine		—	—	—	—	—	—	—
59. Plumbers, hand			—					
61. Shipwrights, machine	—	—	—	—	—		—	—
62. Shipwrights, hand	—	—	—	—		—	—	—
63. Joiners, machine	—	—	—	—	—	—	—	—
64. Joiners, hand	—	—	—	—		—	—	—
65. Spar makers	—		—				—	
67. Wood calkers	—					—	—	—
68. Boat shop	—	—	—	—	—		—	—
71. Painters	—	—	—	—	—	—	—	—
72. Laborers and riggers, outside	—	—	—	—	—	—	—	—
74. Rigging loft	—	—	—	—	—	—	—	—
76. Sail loft	—	—	—	—	—	—	—	—
78. Upholsterers				—				
80. Building trades	—			—	—	—	—	—
81. House carpenters		—	—		—			—
82. Masons			—					
83. Wharf builders			—					
84. Concrete laborers			—					
91. Foundry, iron	—	—	—	—	—	—	—	—
92. Foundry, brass	—	—	—	—	—	—	—	—
93. Foundry, steel	Smelt	—	—	—	—	—	—	—
94. Pattern shop	—	—	—	—	—	—	—	—
95. Dry docks	—	—	—	—	—	—	—	—
96. Paint manufacturing			—	—	—		—	—
97. Manufacturing shops		Rope.	Flag.				Flag.	
98. Do.		Wire.	Coff e.	Tool.				
99. Do.		Chain.	Clo.			Clo.		

TRANSPORTATION.

241. The wages of teamsters, motor-truck operators, locomotive and train crews, etc., engaged in the original delivery of stores purchased under naval supply account to the supply department, in the handling of such stores between the supply department and ships, or from supply department to transportation companies for shipment, or from supply department to yard departments, will be reported to the accounting office as a direct charge to Maintenance, Supplies and Accounts, Title G, and the appropriate account under purpose group 02—transportation of material. The wages of such teamsters, operators, etc., when engaged in handling stores or materials purchased under specific appropriations will be reported as a direct charge to the appropriation concerned, Title G, and the appropriate account under group 02; in case of materials removed from ships, the charge will be made to the appropriation of the job order under which the material was removed, and under Title G and the appropriate account under purpose group 02. The operating cost of delivering rom ships to the supply department stores manufactured for stock is chargeable to indeterminate Title G and the proper account under group 02.

242. Maintenance of transportation system is chargeable to appropriations as provided in paragraph 132.

243. If unit prices for transportation services, including both maintenance and operation, are determined at a yard, they shall be used for administrative purposes and for cost purposes—i. e., as an aid in the determination of the proper distribution of transportation expense to shops, etc.—but in no case shall they be used for the purpose of lodging charges against appropriations. Charges to appropriations shall be made as provided above.

244. Transportation shall not be charged direct to productive job orders. In the case of transportation services rendered to the Marine Corps, to other departments, to private parties, or in the preparation of material for auction sales, charges as incurred shall be made to Title G under transportation numbers, but monthly as of the last day of the month they shall be deducted from the yard indeterminate charges, charged to Title Z, invoiced into store and stubbed out to the proper job orders. If such charges are based on unit costs they shall be arbitrarily split between labor and material.

POWER.

251. At yards where not yet done, the unit cost of power shall as soon as practicable be fixed by local accounting boards, subject to the approval of the Bureau of Supplies and Accounts, on the basis of the total estimated expense (including depreciation) and output, if running at full capacity, 2,400 hours per annum. Until these prices are determined no change in present prices will be made.

252. The cost of power will be transferred to shop expense on the basis of the actual amount of power consumed multiplied by the unit prices. No transfers of power charges will be made to general expense activities.

253. The cost of such power delivered to Title G activities as is a proper direct charge to specific appropriations (i. e., heat and light for storehouses, light for grounds and power for dry docks) will at the end of the month be computed at unit rates, split between labor and material, deducted from the indeterminate expense prorated to appropriations (thus operating as a prorated credit to appropriations) and will be reported on the reports of expenditures as a direct Title G charge to the appropriations concerned.

254. Power which is not a proper charge against Title G, i. e., power furnished naval officers, marine officers, marine barracks, hospitals, ships in commission, private parties, and other departments of the Government, will at the end of the month be treated as manufactured under naval supply account and invoiced to the supply officer. The cost of such power, computed at unit rates, will be split between labor and material and reported on the reports of expenditures as a charge against naval supply account. The power invoiced becomes ultimately a direct charge against appropriations, and, where issuable on stub requisition, it will immediately be stubbed from store to the proper appropriation and job or account. The cost of all power thus invoiced will be deducted as of the last day of the month from the indeterminate expense prorated to appropriations (thus operating as a prorated credit to appropriations).

PAY AND ALLOWANCES OF OFFICERS.

261. Pay and allowances of officers are chargeable monthly by the accounting department to account 0489 from a "Statement of Title G pay and allowances of officers," which the disbursing officer of the yard will furnish to the accounting officer monthly not later than the 5th. No standard form will be provided for this statement. It will include the total amount of pay and allowances accrued during the prior month for all officers performing duty *at the yard*, including the Navy purchasing office, whether the duty is military or industrial, but excluding officers performing duty at naval hospitals, naval magazines, or any other nonindustrial station or activity required by article 4804, Naval Instructions, to render separate reports of expenditures.

262. The entries made quarterly by the disbursing officer of the yard on the pay roll summary (S. & A. Form 61) will agree under Title G with the aggregate of the three monthly "Statements of Title G pay and allowances of officers."

TITLE G VOUCHERS.

271. All Title G vouchers pertaining to the yard are to be reported on the expense statements from memoranda copies (S. & A. Form 85d) prepared by the officer preparing the original and furnished by the officer paying the original. The proper account number will be supplied by the accounting officer if not already appearing on the voucher. Care will be exercised not to take up vouchers erroneously inscribed under Title G pertaining to magazines, hospitals, and other activities required to submit separate reports of expenditures.

272. When the expense statements are prepared, all vouchers then in hand will be taken up. The Bureau of Supplies and Accounts will forward to the yard a monthly "Abstract of Title E and G vouchers" pertaining to the yard. Missing Title G vouchers will be traced by the yard and taken up in subsequent months. The preparation of expense statements will not be delayed to await receipt of abstract or to trace missing vouchers. Title E vouchers will be taken up on the plant account (see par. 413).

EXPENSE DISTRIBUTION.

281. The expense of the general section of a group shall be distributed monthly to specific sections of the group on an equitable basis, prior to the preparation of the expense statements.

282. The cost of power used by shops shall be distributed monthly to shop expense on the basis of actual consumption at unit prices fixed as provided in paragraph 251. Power expense unabsorbed by unit prices shall be regarded as military expense and shall not be distributed.

283. General expense other than power shall be split monthly between military and industrial and the industrial portion distributed to shop expense by fixed percentages, periodically adjusted, which shall be estimates of the service rendered each producing section based on records and studies. In determining the split between industrial and military, the expense of fleet fuel supply, military activities and unoccupied building ways shall be 100 per cent military, tool shop and occupied building ways 100 per cent industrial, and the remaining expense shall be split by fixed percentages, periodically adjusted, based on records and studies.

284. Any change in percentages shall be subject to approval of Bureau of Supplies and Accounts.

285. Expense incurred under one general group shall not be distributed to the expense of another general group, e. g., power furnished the supply department shall be reported as power (although charged to Maintenance, S. & A., as provided in par. 253).

BOARDS ON EXPENSE DISTRIBUTION.

291. At each of the industrial yards the commandant shall appoint a permanent board of officers, representing the various departments, which shall, whenever necessary, make recommendations as to changes in the percentages to be used for expense distribution and on such other accounting matters as may be referred to it.

PLANT ACCOUNT—ADDITIONS AND BETTERMENTS.

301. The plant account serves as an instrument for distributing in an equitable manner to the cost of work, through depreciation, the cost of additions and betterments, the expense of which is so great and the life of which is so long that a charge to current maintenance would be inequitable. The detailed inventory serves as a record, for the information of the administrative officials, and, in so far as is practicable, for the establishment of accountability for property. In the production factor system of determining the incidence of indirect expense the plant inventory also serves a highly important purpose, being, in fact, its most essential feature, whereby the nonproductive expense of idle utilities may be segregated from the expense incident to production.

302. Charges to plant account, Title E, shall be restricted to expenditures for new items of plant under class 2—Land and appurtenances, class 3—Buildings and structures, class 5—Plant appliances, class 6—Machinery and machine tools, and to expenditures for betterments under the classes named. All charges in connection with class 4—Miscellaneous equipment, class 7—Portable power tools, and class 8—Loose and hand tools shall be made to shop or general expense, Title G. When typewriters, computing machines and motor vehicles are exchanged for new machines, the amount paid in cash shall be charged to Title G instead of to Title E.

303. The following definition of betterments, as prescribed by the Interstate Commerce Commission for telephone companies (Uniform System—First Issue, Jan. 1, 1913, p. 32), is adopted:

> "Betterments are mechanical changes in structures, facilities, or equipment which have as their primary aim and result the making of the properties affected more useful or of greater capacity than they were at the time of their installation or acquisition. The cost of such portion only of the changes incident to betterments as will, when added to the original cost of the property bettered, give the cost of replacement or reconstruction in present condition of the property as bettered should be charged to [plant account]. The remainder of the cost of the change should be classed as a repair and be charged to the appropriate operating expense accounts."

304. A common commercial method of arriving at the extent of a betterment in the case of productive machinery is to capitalize the annual estimated reduction in operating costs due to such betterment. For example, if money is worth 5 per cent and it is estimated that operating expenses will be reduced $50 per annum by the redesigning of a machine tool, the amount chargeable to Title E would be (50 divided by 0.05) $1,000, regardless of whether it cost $2,000 or $10,000 to effect the reduction in expenses.

305. The criterion in deciding whether or not outlays for plant repairs are properly chargeable to Title E is whether the expenditures result in making the efficiency of the unit affected greater as regards increased output or decreased operating expenses than when first installed. The amount of money spent or the extensiveness of the repair should not necessarily be the deciding factor.

306. While the accounting instructions specifically restrict charges to Title E to additions or betterments, it may be advisable at times to charge extensive repairs, such as the complete renewal of the planking of a wharf, or the renewal of 20,000 or 30,000 square yards of paving, etc., to Title E in order to avoid undue fluctuations in the annual charges to the expense accounts.

307. In order to avoid inflating the plant account with items erroneously charged as betterments, close scrutiny of the titles under which plant job orders are issued will be made at time of issue. At time of completion such value on job orders under Title E as should not be

taken up on the plant account will be transferred to Title G. If the amount to be transferred to Title G is in excess of the charges to the job for the current month, necessary adjustments shall be made.

308. In order that job-order records may be complete, transfers to title G will appear on the Title E job orders as a memorandum only, as follows:

$..... reported under Title E.
$..... reported under Title G.

A dummy job order will be issued under Title G in the accounting office to take the transfer for the purpose of compiling the Reports of Expenditures, but for no other purpose. This job order will be marked: "Part of Job Order No. (insert Title E job number)."

309. New property, additional outlay for installation, see paragraph 413.

PLANT ACCOUNT—DISPOSITIONS.

321. When surveys are called on plant articles, the survey board shall make report on S. and A. Form No. 154–3 and shall state final disposition in order that subsequent survey in the survey account will be unnecessary. After survey, all plant articles shall be invoiced into the survey account for final disposition. All such invoices will be prepared by the accounting department and taken up by the supply officer in the survey account The supply officer shall not accept invoices originating elsewhere than in the accounting department. Articles will be invoiced into store at the value set by survey, except as provided in paragraph 327.

322. Where destruction of plant values is involved, though the property is not physically turned into store, as in the case of buildings, piers, etc . totally or partially burned, torn down, etc , the accounting officer will be notified in order that his ledgers may be adjusted as per journal voucher No 6.

323. Where articles under classes 4, 7, and 8 are invoiced into store no plant-account transactions in the accounting department are involved.

324. At the conclusion of a sale, the supply officer will prepare a statement showing the inventory number, name, first cost, and amount realized on each item in class 5 (plant appliances) or class 6 (machinery and machine tools). A copy of this statement will be furnished the accounting officer and a copy forwarded to the Bureau of Supplies and Accounts in order that a notation may be made on the appropriate inventory cards.

325. In cases where a survey of depreciable plant items is canceled and the items returned to the plant account after having been taken up in the survey account, the supply officer will invoice the items from the survey account at first cost to the accounting officer, who will reverse the prior entries in the property and general ledgers, carrying the item on his ledgers at the same value as before the survey occurred.

326. Transfers of plant property between yards will be carried through the survey and used material accounts and stubbed out from the latter by the receiving yard.

327. In case of transfer of plant items under classes 5 and 6 between yards, the transferring yard will invoice the property at first cost value (with a notation showing appraised value and a notation "Stub out at first cost value," see par. 328, Manual for Accounting Officers). The transferring yard will prepare special journal voucher, as follows:

Dr. Estimated deterioration of plant (with the estimated deterioration to the end of the fiscal year of transfer).
Dr. Appraised value of plant (with the appraised value of the item at end of fiscal year of transfer).
Cr. First cost of plant (with first cost of item).

328. In case of transfer of plant items under classes 5 and 6 the receiving yard will stub the property out at first cost value, charging cost of installation to Title G, and will immediately depreciate the property by special journal voucher as follows:

Dr. First cost of plant (with first cost of item).
Cr. Appraised value of plant (with the appraised value of the item at end of fiscal year of receipt).
Cr. Estimated deterioration of plant (with the estimated deterioration to the end of the fiscal year of receipt).

PLANT ACCOUNT—DEPRECIATION.

341. Navy yard depreciable property consists of class 2—Land and appurtenances (except dry land and water rights), class 3—Buildings and structures, class 5—Plant appliances (except typewriters, com-

puting machines, and motor vehicles), class 6—Machinery and machine tools.

342. Typewriters, computing machines, and motor vehicles (class 5) will be accounted for in accordance with Article 1, 4571 et seq. These appliances will be carried on the plant account at all times at first cost, no allowance being made for deterioration.

343. Depreciation is used primarily to equalize overhead charges. If a yard consisted of numerous items of plant of small value which were constantly being replaced, a depreciation account would be unnecessary, as every acquisition of property intended to replace a similar item could be charged directly to Title G. This, together with the fact that the plant records would be unwieldy and the inventories impracticable, is the reason for not setting up depreciation reserves for property in classes 4, 7, and 8. Depreciation in its broadest aspects consists of several elements, viz: (*a*) Wear and tear; (*b*) general decay; (*c*) obsolescence; (*d*) inadequacy; and (*e*) accidents. Repairs, constantly being made in every plant, are intended to offset wear and tear. While wear and tear is in the nature of depreciation, the expenditures incurred to offset this element continue about the same year after year and are, therefore, chargeable directly to Title G and are not included in the depreciation allowance. The remaining elements can not be offset by repairs but require the replacing of the entire unit.

344. Depreciation is computed on remaining values; that is, beginning with the original investment a constant percentage is charged off each year on the decreasing balance (appraised value) until it is finally disposed of. Estimates of scrap value (par. 374), together with estimated life, year of installation, and first cost of an item, furnish the information necessary to compute the appraised value from the standard depreciation tables and curves as follows:

345. Annually on July 1 the predicted appraised value, as of the end of the fiscal year then beginning, computed from the standard depreciation curves and tables for each item of depreciable property (i. e., class 2, except dry land and water rights, classes 3, 5, and 6), will be entered on the individual inventory cards opposite the legend "appraised value, 19 (numeral of fiscal year then beginning)." One-twelfth of the difference between this figure and the "appraised value 19 (numeral of fiscal year just ended)" on all items of depreciable property will be charged off monthly during the fiscal year on the expense statements and carried through the property ledger and general ledger as per monthly journal voucher No. 3 (see par. 431).

346. In case the estimated life of a piece of property is 30 years or less, the appraised value can be determined from the depreciation table as follows:

First cost	$1,000
Year installed	1910
Estimated life	20
Scrap value	10%
Appraised value, 1915	$560

The appraised value was determined as follows: 1915 − 1910 = 5 = number of years of service. Referring to the table, the appraised value

at the end of five years is 56 per cent of first cost. 1,000 × 0.56 = 560, appraised value 1915.

347. In case the estimated life is greater than 30 years, the appraised value can be determined from the depreciation curves as follows:

First cost	$200,000
Year installed	1907
Estimated life	80
Scrap value	10%
Appraised value, 1915	$158,000

The appraised value was determined as follows: 1915 − 1907 = 8 = number of years of service: 8 ÷ 80 − $\frac{1}{10}$ = portion of estimated life already gone. Referring to the curve marked 10 per cent, it is noted that the appraised value in 1915 is about 79 per cent of the first cost; 200,000 × .79 = 158,000, appraised value 1915.

348. The curves should be used in all cases where scrap values are other than 5, 10, or 20 per cent, as the tables provide only for the three classes.

349. No general rule can be used in the determination of the elements upon which depreciation is based. Much depends upon the way the property is used and cared for. The life of a lathe in one plant may be 20 years; in another the same lathe may be out of commission in 10 years. For the present, and until better data is obtainable from yard records, the following general figures for estimated life, in years, will, for the sake of uniformity, be used:

	Years.	Scrap value.
Class 2—Land and appurtenances:		
Unimproved land, no depreciation.		
Paving and sidewalks, about	40	10%
Tracks	80	20
Bridges	40	10
Piers and sea walls	100	10
Boundary walls and fences	100	10
Class 3—Buildings and structures:		
Stone and concrete	100	10
Brick and steel	80	10
Wood or corrugated iron	40	10
Dry docks	100	10
Class 5—Plant appliances:		
Live stock and vehicles	16	5
Railroad rolling stock	20	10
Tugs, lighters, floating cranes, etc	25	10 to 20
Class 6—Machine tools:		
(*a*) Heavy tools—especially of intermittent service	30	10
(*b*) All except special tools in (*a*) or (*c*). This class will comprise perhaps 80 per cent of all machine tools	16	10
(*c*) Small or lightly constructed tools	8	10

PLANT ACCOUNT—INVENTORY CARDS.

361. The inventory and appraisal of yard property will be recorded on plant inventory cards (S. & A. Form 38). Property of the Marine Corps, equipment and outfits pertaining to receiving ship activities, articles in store, and consumable supplies shall be excluded.

362. All property will be divided into the seven physical classes described in detail at pages 18–21 of Detailed Classification of Industrial Accounts, and as further indicated in the Index to Physical Classification at pages 95–118, as follows:

Class No.	Description.	Color border on cards.
2	Land and appurtenances	Brown.
3	Buildings and structures	Red.
4	Miscellaneous equipment	Green.
5	Plant appliances	Gray.
6	Machinery and machine tools	Black.
7	Portable power tools	Blue.
8	Loose and hand tools	Purple.

363. Property will also be classified under the purpose groups prescribed at pages 22–23 of Detailed Classification of Industrial Accounts and as further indicated under the various shop and general expense accounts (pp. 25–93).

364. Cards for class 4—Miscellaneous equipment, class 7—Portable power tools, and class 8—Loose and hand tools will be kept as follows: One card covering the total first cost of each of these three classes in each building will be kept, no itemized list of articles being required (i. e., for each building containing equipment there will be one green card, for each building containing portable power tools there will be one blue card, and for each building containing loose and hand tools one purple card). A distribution of the value by sections will be shown on the back of the card. No entries on the face of these cards are necessary, except as follows: Location (building No. ——); first cost.....; group Nos.....; description (miscellaneous equipment or portable power tools or loose and hand tools). As all additions to plant under these classes are chargeable to expense, no depreciation is charged on such property, and the cards will after original preparation remain unchanged by reason of acquisitions, dispositions or depreciation, until such time as it is deemed advisable to have a general reappraisal (see pp. 19–21, Detailed Classification of Industrial Accounts).

365. Separate cards will be kept for all individual items of plant under class 2—Land and appurtenances; class 3—Buildings and structures; class 5—Plant appliances; and class 6—Machinery and machine tools. The accounting department will be responsible for a system of continuous inventory on these items. A new card will be opened for each acquisition to the plant under these classes, and three

copies of same will be forwarded to the Bureau of Supplies and Accounts with the monthly journal vouchers (see par 432). Three copies of each card covering property disposed of will also be forwarded with the journal vouchers.

366. In the case of land and appurtenances, the following cards will be kept:

One card for total dry land.
One card for total paving.
One card for total sidewalks.
One card for total boundary walls, fences, and retaining walls.
One card for all piers.
One card for each distributing system..
One card for total trackage, etc.

367. In filling out cards for classes 2, 3, 5, and 6, the following instructions will govern:

368. In general the upper part of the card only is to be filled out at the yard. Property should be listed on cards with color borders as indicated in paragraph 362. The principles of "Precision of measurements" should be followed—i. e., use only three significant figures. Cents should not be entered.

369. *Location.*—Use building number, or if the property is not in a building, then a location number corresponding to the latest key or marked yard plan forwarded to the Bureau of Supplies and Accounts.

370. *Group number.*—Use purpose group and section numbers of the *standard* (not maximum) list appearing at pages 22–23 of Detailed Classification of Industrial Accounts.

371. *Unit number.*—Unit numbers will be assigned under each class and section.

372. *First cost.*—This shall be the purchase price if known, otherwise the replacement value. In the case of machine tools the first cost shall include cost of installation, foundations, countershafts, motors and accessories, spares, special attachments, and tools such as chucks, face plates, slide rests, boring bars, headstocks, change gears, tilting tables, safety appliances, etc., which are part of the equipment of a machine tool or loose power tool will be classified as a part of the machine or other tool concerned.

373. *Year installed.*—This shall be the year in which the item was first ready for use.

374. *Estimated life and scrap value.*—The estimated life of a piece of property is the total number of years of useful service—being the elapsed time between date of installation and the probable date when it will be obsolete, sold, or scrapped. Estimates of scrap value will be recorded on the line with estimated life in terms of a percentage of first cost—i. e., 1, 5, 10, 20, or 40.

375. *Appraised value.*—See depreciation, paragraphs 341 et seq.

376. *Description and size.*—Enter the generic name of the item of plant, such as lathe, milling machine, etc., followed by a brief description. The size of a machine shall be construed as the largest piece of work that it is capable of accommodating. For example, the dimensions which chiefly limit the applicability of an ordinary planing

machine are the width between standards and the height to which the cross slide can be raised. The length of the bed and the extent of its traverse (or, in other words, the greatest length of cut that can be taken) should also be noted in giving the size of a machine of this type.

377. *Make.*—This is self-explanatory.

378. *Reference number.*—The reference number should be the number on metal tag or label upon the machine, if any. If no label plate, use number on official plan of shop. Steps should be taken to tag all property, except hand tools and small items of equipment. Owing to the use of statistical machines, the use of letters as a part of the inventory number is awkward and should if possible be avoided.

379. *Drive.*—Enter in this space the kind of power transmission used—belt, motor, oil, air, steam, etc.

380. *Power consumed—horsepower per hour (estimated).*—This means the power consumption of the producing unit when occupied one hour on average work, assuming no intermissions due to lack of work but simply those due to setting up work, etc. Power in the shape of electricity, steam, air, or fuel should be converted into horsepower hours by the following arbitrary rules:

Electricity—multiply the kilowatts per hour by 1.34.
Steam, multiply pounds used by 0.05.
Compressed air—multiply cubic feet used by 0.0025.
Coal—multiply pounds used by 0.5.
Oil—multiply pounds used by 0.7.

381. If power tests are made on various types of machines, allowances must be made for differences between the class of work handled at time of test and the average work handled by the machine, as well as for the normal intermissions in handling work when fully occupied—i. e., intermissions due to setting up the work, etc. (which range from 10 or 20 to 70 or 80 per cent of the occupied time), but not due to lack of work. Where practicable a rough check on the estimated power consumption of the machines in a shop may be had by maintaining for a certain period a record of the time each machine was occupied, multiplying in each case by the estimated consumption and checking the total with the total power delivered to the shop as shown by meter readings taken at the beginning and at the end of the period.

382. *Area obstructed.*—Enter here, in the case of machine tools, the number of square feet of allotted floor space. The sum of these areas for all the machine tools in a building should equal the total obstructed area entered on the building card (see par. 383). The first essential in the apportionment of floor space is a plan inventory of the building showing the various machines in position. On this plan will be marked off the floor space required for each machine, including in each case such space as may be required for the handling of the material being worked upon and the convenient movement of the operator in performing his duties. Working spaces should cover the entire floor space, except for such portions as are provided for future additional equipment, for storage of completed work and for general purposes such as offices, tool rooms, toilet rooms, stairways, elevator wells, and the like.

383. On every building card, following the description and size of the building, will be entered the usable floor space of the building—i. e., total floor space less deductions for stairways and elevator wells. The obstructed area is the usable floor space less deductions for offices, general spaces, toilets, etc. On the back of the card will be shown the distribution of obstructed area, and, based thereon, the distribution of the first cost to the purpose groups occupying the building. The sum of the areas allotted to each purpose group will equal the total obstructed area of the building. Likewise the sum of the obstructed areas of the individual machine tools in a purpose group will equal the area allotted to such purpose group as stated on the building card.

384. *Number in operating gang and hourly wage.*—This information will be entered on all cards covering shop productive machinery and on the cards covering yard transportation appliances, such as motor trucks, traveling cranes, and locomotives. In cases where a combination of machines is used in performing an operation the number of men in the operating gang and hourly wage will be noted on each machine forming the battery as a fractional part of the total number of men in the gang. For example, if a gang of 5 men with an hourly wage of $1.70 serves 3 machines the entry on each of the 3 machines forming the battery would be $1\frac{2}{3}$ men at $0.57 per hour.

385. *Percentage of use factor.*—On all machine tool cards enter under the hourly wage a percentage of use factor (95, 75, 50, 25, or 10 per cent) to indicate the estimated average portion of an eight-hour day such machine tool would be in use, i. e., occupied so as not to be available for other work, if the yard were working at full capacity, i. e., filled up with all sorts of orders for which the yard is designed and equipped.

PROPERTY (SUBSIDIARY) LEDGER.

401. Property ledgers shall be maintained on S. & A. Forms 38a and 38b upon which will be shown:

(*a*) First cost of plant in each character class and purpose group, controlled by general ledger account first cost of plant.
(*b*) Estimated deterioration of plant in each character class and purpose group, controlled by general ledger account estimated deterioration of plant.
(*c*) Actual deterioration of plant in each character class and purpose group, controlled by general ledger account actual deterioration of plant.

402. The account first cost of plant in the property ledgers controls the plant inventory cards. (See also under "General ledgers, par. 411 et seq.")

GENERAL LEDGERS.

411. The following accounts will be maintained:

Accounts showing a debit balance.	*Accounts showing a credit balance.*
First cost of plant.	
Actual deterioration of plant.	
	Appraised value of plant.
	Estimated deterioration of plant.
	Uncompleted work as of July 1.
Work in progress, ship construction, Title A.	
Work in progress, ship repair, Title D.	
Work in progress, ship repair, Title K.	
Work in progress, ship repair, Title P.	
Work in progress, plant additions, Title E.	
Work in progress, miscellaneous (work for Marine Corps, other government departments and private parties and in connection with auction sales).	
Work in progress, manufacturing, naval supply account.	
Work in progress, manufacturing, ordnance account.	
Completed work.	
Naval Establishment charges, Title V.	
Military general expense, Title G.	
Shop expense and industrial general expense, Title G.	
Power and transportation invoiced into store, Title Z.	
Output of Title Z shops, Title Z.	
	Overabsorbed indirect expense applied to job orders, Title 15.
	Indirect expense applied to Title Z and miscellaneous job orders.
	Accrued pay and allowances of officers on industrial duty.
	Labor earned (civil roll).
	Public vouchers, titles other than X.
	Depreciation on plant.
	Material issues, naval supply account.
	Material issues, ordnance account.
	Material issues, used material account.
	Material issues, provisions account.
	Material issues, clothing account.

Accounts showing a debit balance.	*Accounts showing a credit balance.*
Class 0—Direct labor and material, Title Z shops.	
Class 0—Miscellaneous labor and consumable supplies.	
Class 1—Damage and waste.	
Class 1—Leave.	
Class 1—Holiday.	
Class 1—Disability.	
Class 1—Depreciation.	
Class 2—Land and appurtenances.	Class 1—Scrap credits.
Class 3—Buildings and structures.	
Class 4—Miscellaneous equipment.	
Class 5—Plant appliances.	
Class 6—Machinery and machine tools.	
Class 7—Portable power tools.	
Class 8—Loose and hand tools.	
Class 9—Supervision—civilians.	
Class 9—Supervision—officers.	
	Shop expense—Direct labor and material, Title Z shops.
	Shop expense, other than direct labor and material, Title Z shops.
	Group 00—Grounds and miscellaneous.
	Group 01—Supply.
	Group 02—Transportation.
	Group 03—Power.
	Group 04—Administration.
	Group 05—Building ways.
	Group 06—Tool shop.
	Group 07—Military activities.

412. The account work in progress, plant additions, will control the uncompleted final cost records under Title E.

413. The amount of each public voucher for new property requiring additional outlay for installation will be noted on the final cost record covering the installation, and the amount of voucher covering payments to contractors for construction work will be noted on a memorandum final cost record. In either case the charge will be made to the account work in progress, plant additions, and corresponding credit made to account public vouchers, titles other than X. After completion of installation or of payment credit will be made to work in progress, plant additions, and charge made to completed work, credit appraised value, and charge first cost and the appropriate subsidiary account in the property ledger.

414. Every charge to the account first cost of plant in the general and property ledgers will be covered by inventory cards. The charges

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to first-cost account during any month plus the net increase in work in progress, plant additions, must check with the amounts shown on the report of expenditures as a charge to Title E (labor, indirect, material, and vouchers).

415. But one journal voucher covering all dispositions of depreciable plant (classes 2, 3, 5, and 6) occurring during the month will be prepared. To the copy of the monthly journal voucher forwarded to the Bureau of Supplies and Accounts will be attached three copies of inventory cards (S. & A., Form 38), upon each of which will be noted the date and number of the survey report and the appraised value as set by the surveying officer.

416. After the articles have been invoiced into store and monthly journal voucher has been prepared, no further ledger adjustments are involved on account of reappraisal or final disposition of the articles.

417. In case of transfer of plant items under classes 4, 7, 8 between yards no ledger entries are involved at either yard.

418. In case of transfer of plant items under classes 5 and 6 between yards the ledger entries prescribed in paragraph 120 will be made.

JOURNAL VOUCHERS.

431. The following journal vouchers will be prepared:

Monthly Journal Voucher No. 1.

For the expenditures for labor, material, officers' pay and allowances, public vouchers and depreciation charged to expense accounts.
- Charge: Expense accounts 0 to 9.
  - Credit: Shop expense—Direct L. & M., Title Z Shops.
  - Credit: Shop expense other than direct L. & M., Title Z Shops.
  - Credit: General expense accounts 00 to 07.

Monthly Journal Voucher No. 2.

For pay and allowances of all officers on duty in the yard:
- Charge: Shop expense and industrial general expense (Title G).
  - Credit: Accrued pay and allowances of officers on industrial duty.

For the total labor consumed (civil roll):
- Charge: Work in progress accounts, Title A, etc.
- Charge: Naval establishment charges, Title V.
- Charge: Shop expense and industrial general expense (Title G).
  - Credit: Labor earned (civil roll).

For depreciation on plant:
- Charge: Shop expense and industrial general expense (Title G).
  - Credit: Depreciation on plant (Title G).

For public vouchers paid—Titles other than X:
- Charge: Work in progress accounts, Title A, etc.
- Charge: Naval establishment charges, Title V.
- Charge: Shop expense and industrial general expense (Title G).
  - Credit: Public vouchers, titles other than X.

For the value of material drawn from store:
- Charge: Work in progress accounts, Title A, etc.
- Charge: Naval establishment charges, Title V.
- Charge: Shop expense and industrial general expense (Title G).
  - Credit: Material issues, N. S. A., ordnance account, used material account.

For the amount of indirect expense applied to job orders:
- Charge: Work in progress accounts, Title A, etc.
- Charge: Naval establishment charges, Title V.
  - Credit: Overabsorbed indirect expense applied to job orders (Title 15).
  - Credit: Indirect expense applied to Title Z and miscellaneous job orders.

Monthly Journal Voucher No. 3.

For the amount of expense estimated as chargeable to military:
- Charge: Military general expense (Title G).
  - Credit: Shop expense and industrial general expense (Title G).

For the value of power and transportation invoiced into store:
- Charge: Power and transportation invoiced into store (Title Z).
  - Credit: Shop expense and industrial general expense (Title G).

For the value of the output of Title Z—Shops.
- Charge: Output of Title Z—Shops (Title Z).
  - Credit: Shop expense and industrial general expense (Title G).

Monthly Journal Voucher No. 4.

For the value of work completed during the month:
- Charge: Completed work.
  - Credit: Work in progress accounts, Title A, etc.

Monthly Journal Vouchers No. 5.

For the first cost of property in classes 2, 3, 5, and 6 acquired. All such acquisitions will be carried through the accounts "Work in progress, plant additions" and "Completed work."
- Charge: First cost of plant.
  - Credit: Appraised value of plant.

Monthly Journal Voucher No. 6.

For one-twelfth of the estimated annual deterioration:
- Charge: Appraised value of plant.
  - Credit: Estimated deterioration of plant.

For the first cost of property in classes 2, 3, 5, and 6 disposed of:
- Charge: Actual deterioration of plant.
- Charge: Appraised value of plant.
  - Credit: First cost of plant.
- Charge or credit: Estimated deterioration of plant.

For the difference between the appraised value and first cost (as per inventory card, S. & A. Form 38) of property in classes 2, 3, 5, and 6 disposed of:
Charge: Actual deterioration of plant.
Charge: Appraised value of plant.
Credit: First cost of plant.
Charge or credit: Estimated deterioration of plant.

For the actual deterioration on property in classes 2, 3, 5, and 6 disposed of; i. e., the difference between its first cost as per inventory card and its appraised value as set by the surveying officer.
Charge: Actual deterioration of plant.
Charge: Appraised value of plant.
Credit: First cost of plant.
Charge or credit: Estimated deterioration of plant.

For the difference between the actual deterioration of property in classes 2, 3, 5, and 6 disposed of as shown by the survey report and the estimated deterioration as shown by the inventory card (S. & A. Form 38). Charge the account "Estimated deterioration of plant" if the deterioration shown by the inventory card is greater than that shown by the survey report; credit the account if the reverse is true:
Charge: Actual deterioration of plant.
Charge: Appraised value of plant.
Credit: First cost of plant.
Charge or credit: Estimated deterioration of plant.

Yearly Journal Voucher.

For the value of work in progress at the beginning of the fiscal year:
Charge: Work in progress accounts, Title A, etc.
Credit: Uncompleted work as of July 1.

432. Property ledgers similar to those kept at industrial yards will be maintained by the Bureau of Supplies and Accounts. Monthly journal vouchers covering transactions affecting plant values will hereafter be prepared at the yards in duplicate. A duplicate copy with three copies of inventory cards (S. & A. Form 38) covering acquisitions and dispositions, will be forwarded by the accounting officer direct to the Bureau of Supplies and Accounts in order that the bureau and yard records may be kept in agreement.

LIABILITY ACCOUNTS—SHIPS.

441. An account of the liabilities against the statutory limit of repairs on vessels shall be maintained, as provided in article 4355, Naval Instructions.

LOCAL BULLETINS.

451. Two copies of any accounting bulletin or other general notice locally issued shall be forwarded to the Bureau of Supplies and Accounts.

STATISTICAL MACHINE SYSTEM.

461. Card punching, sorting, and tabulating machines have been installed at all the continental industrial yards except Portsmouth and Charleston, and various systems are being tried out. The present Boston system, briefly, is as follows:

462. Six standard cards are used:

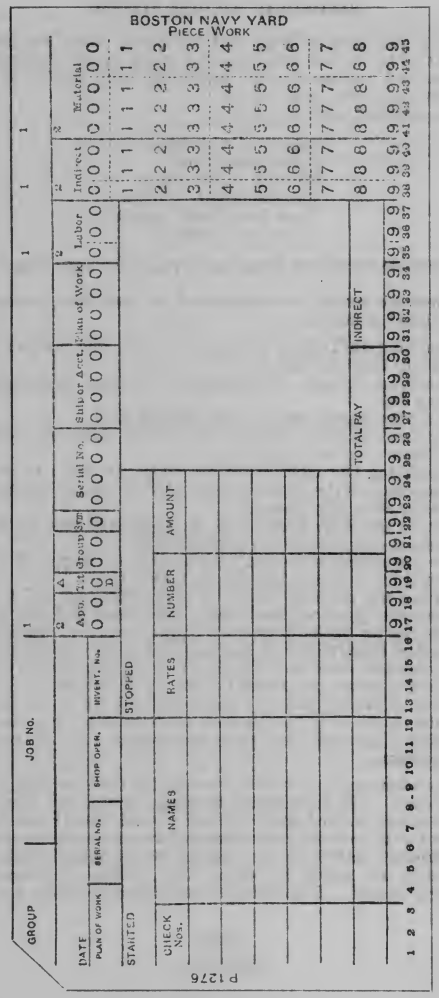
Labor debit, orange.
Labor credit, red.
Material debit, green.
Material credit, salmon.
Piece work debit, manila.
Master card, brown.

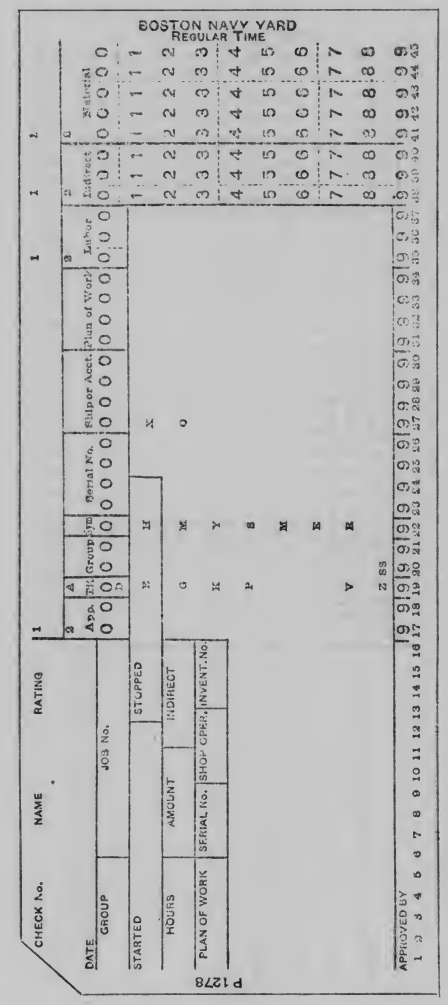
463. For these cards four forms are required, as appearing on pages 166-169.

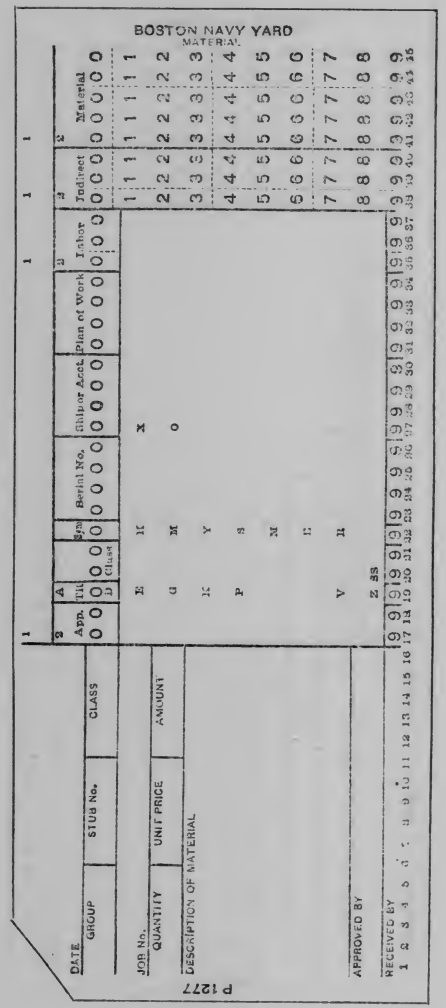
464. The work which is being carried on with these cards may be briefly outlined as follows:

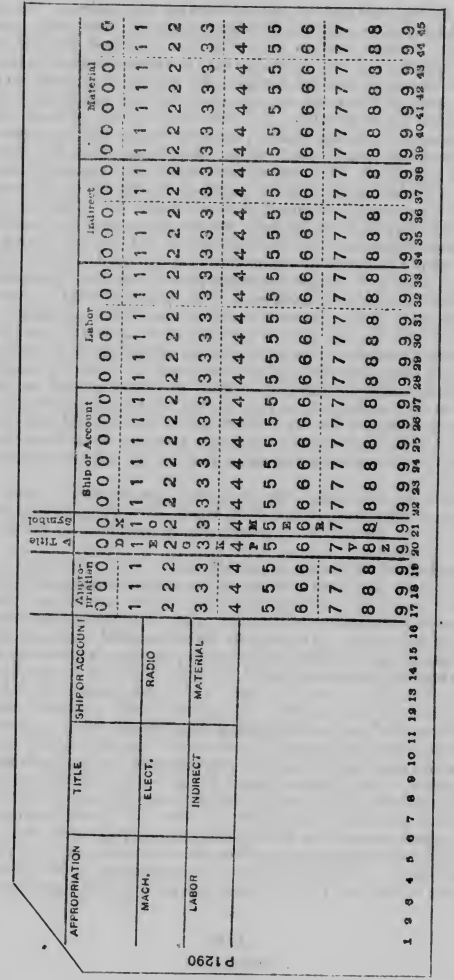
1. Punching individual labor cards from the various shops—about 3,500 per day.
2. Punching material cards from the various shops—about 800 per day.
3. Punching master cards—about 500 per day.
4. Punching cards in lieu of the former daily shop tally and abstract—about 50 per day.
5. Tabulating the labor cards, by shops, in order to check the accuracy of the punching and also to obtain figures for the daily shop tally abstract.
6. Sorting the daily labor cards, by appropriations, for the daily report of appropriation expenditures.
7. Further sorting of the daily labor cards, by ships and accounts, in order to obtain data for the master cards.
8. Sorting the material cards, by appropriations, and tabulating same in order to check their correctness and also to secure figures for the daily report of appropriation expenditures.
9. Further subdividing of the material cards, by ships and accounts in order to obtain data for punching master cards.
10. Filing of labor and material cards, by job orders.
11. Filing of master cards, by appropriations, for use at the end of the month in the preparation of the monthly reports.
12. Filing of the daily shop tally and abstract cards by production centers.

465. The labor card is a dual card combining the former time chit and statistical card. The information formerly entered by shops on the time chits is now entered on the statistical card, these cards being forwarded to the accounting office arranged in numerical sequence by check numbers. As soon as the cards for each shop are checked to the pay roll they are sorted by shops, the producing group number being gang punched. The cards are next sorted by groups a to e (par.


BOSTON NAVY YARD
Piece Work
GROUP
JOB No.
DATE
PLAN OF WORK
SERIAL No.
SHOP OPER.
INVENT. No.
STARTED
STOPPED
CHECK Nos.
NAMES
RATES
NUMBER
AMOUNT
TOTAL PAY
INDIRECT
App.
Group
Serial No.
Subor Acct.
Plan of Work
Labor
Indirect
Material
P 1276


BOSTON NAVY YARD
Regular Time
CHECK No.
NAME
RATING
DATE
GROUP
JOB No.
STARTED
STOPPED
HOURS
AMOUNT
INDIRECT
PLAN OF WORK
SERIAL No.
SHOP OPER.
INVENT. No.
APPROVED BY
App.
Group
Serial No.
Subor Acct.
Plan of Work
Labor
Indirect
Material
P 1278


BOSTON NAVY YARD
MATERIAL
DATE
GROUP
STUB No.
CLASS
JOB No.
QUANTITY
UNIT PRICE
AMOUNT
DESCRIPTION OF MATERIAL
APPROVED BY
RECEIVED BY
P 1277


APPROPRIATION
TITLE
SHIP OR ACCOUNT
MACH.
ELECT.
RADIO
LABOR
INDIRECT
MATERIAL
P 1290

133), and the indirect figured on each card having indirect. As the cards are sorted by groups a to e, a stop card is placed after each group, the cards being turned over to the punchers arranged in this manner. After the information entered on the card has been punched in the spaces provided, the cards are run through the tabulator in order to get the totals for each of the groups a to e, and also the grand total, which is checked with the shop tally. As these cards are run through the tabulator, a production group card is punched for the total amount of each of the groups a to e in each shop. After the cards for each shop have been proved, the cards are sorted by appropriations and placed in a file box until after the last shop is completed. The cards are then taken by appropriations and run through the tabulator a second time in order to get the total daily expenditures under each appropriation for the preparation of the daily report. After the figures for the daily report are obtained and checked with the total of the pay roll, the cards for each appropriation are further subdivided by titles and ships or accounts and stop cards inserted. The cards are then run through the tabulator a third time. As each total shows up in the tabulator, a master card is punched directly from the information appearing in the designating counters on the tabulator. These master cards for each appropriation are then run through the tabulator in order to insure their having been correctly punched. They are then placed on file until the end of the month, when they are sorted by appropriations, titles, and ships or accounts for the preparation of the monthly reports of expenditures. The daily cards, as soon as the master cards are punched, are filed by job orders in the same manner as the former time chits were filed.

466. No master cards are cut for charges against shop, power, or general expense accounts, as the daily cards are sorted and tabulated at the end of the month by accounts for preparation of statements of monthly expense.

467. In lieu of the former material stub, a statistical card has been provided which permits the entry of the information contained on the former stub requisition and also provides for the punching of this information on the remainder of the card, only one item of material being entered on each card. At the time these material cards are made out by the persons authorized to prepare them, an entry is made on a separate sheet giving the serial number of the stub, the shop or department for which the material is required, and the job order number. At the end of each day this list, covering all material cards prepared during the day, is forwarded to the accounting department. The material cards go to the storeman who issued the material, via the supply office, and as soon as the material is delivered, are forwarded by the storeman to the supply office. After being priced in the supply office, the cards are forwarded daily to the accounting office, where they are checked against the material lists which have been forwarded by the different shops and offices (tracers are sent out for all stubs or material cards which are not returned priced within one week from the time they are reported on the daily stub list). After this is done, the information on the left-hand side of the card is punched in the spaces provided on the right-hand side of

the card. The cards then go through the routine as outlined above for the labor cards. Both labor and material cards are filed together in the same file, by job orders.

468. When cards are spoiled and unsuitable for use in the tabulators duplicates are prepared and the originals filed in a separate "spoiled card" file, by dates, in order that reference may always be had to originals.

469. After the last day's work for a month has been completed and master cards sorted by appropriations, titles, and ships or accounts they are run through the tabulating machine, and the rough sheets for the monthly reports are prepared direct from the tabulator as the cards are run through.

470. The labor debit and the labor credit card are printed from the same electrotype, also the material debit and the material credit from the same electrotype. It will therefore be seen that four different forms are used in connection with this system.

471. The modifications from the manual system of bookkeeping which ensued from the introduction of the statistical machine system are as follows:

472. Daily manual postings to job order Recapitulation sheets has been done away with. The place of this is taken by the consolidated files of time and material cards, from which this information can be obtained at any time when desired by running through the tabulator. Monthly postings to Cost Records have been done away with, these postings being made now only at the expiration of the job. At any time during the life of a job when costs are desired by the industrial divisions, cards are removed from the file and run through the tabulator and cost to date of inquiry given. It is believed that this saves considerable work, as there is a multitude of job orders on which information is never requested until completion.

473. When a notice of completion is received on a job order, the cards for this job order are taken from the current file, sorted by shops, tabulated, and posted to the Cost Record. The cards are then filed away as a reference in the completed files.

474. As most of the piecework is done by gangs, the piecework card has been designed to provide for the entry of the pay of the men in each gang, the total pay of the gang being punched on the card instead of the individual pay for each man. These piecework cards go along with the regular daywork cards.

CORRESPONDENCE SUBJECT INDEX.

481. The following classification of correspondence on industrial accounting system is in use in the Bureau of Supplies and Accounts:

File No.	Subject.
122-00	Industrial accounting system in general—scope, theory, and practice; cost of work in general.
122-01	Bulletins, local.
122-02	Building ways expense.
122-03	Charges, indeterminate.

File No.	Subject.
122–05	Charges, location of (see note *a*).
122–06	Clothing factory.
122–07	Cost reports.
122–08	Depreciation.
122–09	Dry docks.
122–11	Expenditure reports.
122–13	Expense distribution.
122–15	Expense rates.
122–17	Expense statements.
122–18	Forms and records.
122–19	Foundry.
122–21	General expense; miscellaneous group.
122–23	Group classification.
122–25	Job order system.
122–27	Ledgers.
122–29	Liability accounts—ships.
122–30	Material system.
122–31	Title Z shops (see note *b*).
122–32	Manual for Accounting Officers, changes in.
122–33	Administration expense.
122–34	Military activities.
122–35	Plant inventory.
122–37	Power.
122–39	Public works shop.
122–41	Statistical machine system.
122–43	Supply expense.
122–47	Time keeping.
122–49	Transportation.
122–50	Yards and Docks appropriations.
122–51	All other subjects.

[a] Unless specifically classified. [b] Except foundry.

482. It is requested that each letter addressed to or intended for the Bureau of Supplies and Accounts carry the above classification into effect in the statement of the subject or subjects of the letter as in the following example:

"SUBJECT: Industrial accounting system—Expenditure reports."

483. Wherever practicable, separate letters shall be prepared covering separate subjects; where a subject is classified under more than one heading, it will be stated as in the following example:

"SUBJECT: Industrial accounting system—Bulletin, Local, No. 1—Transportation."

REPORTS.

491. Accounting officers at industrial navy yards shall render the following periodical returns and special reports as may be required:

1. Daily: Report of expenditures, to the commandant, industrial manager, and heads of divisions and departments.

2. Pay period: Pay roll, to the yard disbursing officer (S. & A. Forms 81, 84, 84a).

3. Monthly, by the 10th: Report of expenditures, one complete report to the commandant, industrial manager, and to the Bureau of Supplies and Accounts. Partial reports to other bureaus of the Navy Department (*not* required for Secretary's office) and other Government departments concerned and to heads of divisions for the appropriations under their cognizance (S. & A. Form 280.)

4. Monthly: Summary of expenditures by appropriations and titles, to be forwarded, with the reports of expenditures, to the Bureau of Supplies and Accounts and each bureau concerned (S. & A. Form 280b).

5. Monthly: Expense statements, to each bureau concerned (not required for Secretary's office) (S. & A. Forms 298, 299, 299a, 299c); expense statements, to local executives and Bureau of Supplies and Accounts (S. & A. Forms 298, 298b, 299, 299a, 299b, 299c).

6. Monthly, by the 5th: Labor roll summary, to the yard disbursing officer (S. & A. Form 184).

7. Monthly, by the 5th: Summary of stub requisitions, separately for naval supply account, used material account, and ordnance account, to the supply officer(S. & A. Form 178).

8. Monthly: Summary of memorandum invoices, to the supply officer (S. & A. Form 162).

9. Monthly: Cost of building U. S. S. ——— (hull), to Bureaus of Construction and Repair and Supplies and Accounts (N. C. R. Form 60).

10. Monthly: Cost of building U. S. S. ——— (machinery), to Bureaus of Steam Engineering and Supplies and Accounts (N. S. E. Form 102 sp.).

11. Monthly: Report of civilian employees at navy yard, ———, to Bureau of Construction and Repair (N. C. R. Form 159).

12. Monthly: Report of employees (clerical, drafting, inspection, and messenger force), to Office of Secretary (N. S. O. Form 69).

13. Monthly: Statement of charges against special deposits, to the yard disbursing officer.

14. Monthly: Abstract of Title E and G vouchers, when received, complete and return one copy to Bureau of Supplies and Accounts (N. S. A. Form 544).

15. Monthly: Cost summaries of Title Z shops, to Bureau of Supplies and Accounts (S. & A. Form 286c, etc.). These summaries will be bound with the monthly expense statements forwarded to bureaus of the Navy Department.

16. Monthly: Copy of journal vouchers affecting plant values, together with three copies of S. & A. Form 38, to Bureau of Supplies and Accounts (S. & A. Form 261). These shall be forwarded under same cover as expense statements, but not bound therewith. *All such vouchers and cards shall be stamped with the name of the yard.*

17. Quarterly, or upon completion: Report for reimbursement for work performed for other departments of the Government, after being certified by the representative of the other Government department concerned, to the Bureau of Supplies and Accounts, in quadruplicate.

18. Quarterly: Record of work (tugs, station ships, etc.), as prescribed by article 4350 (p) and (q) N. I., to the bureau concerned (Form N. S. O. 27).

19. When occurring: Cost summary, to the bureau concerned (S. & A. Form 260).

20. When occurring: Record of work as prescribed by article 4350 (p) and (q) N. I., to the bureau concerned (Form N. S. O. 27).

21. When required: Cost of standard articles manufactured, to bureau concerned (Form N. C. R. 122).

22. When required: Special reports. A copy of any special report made other than for local use will be forwarded to the Bureau of Supplies and Accounts.

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